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STATE OF THE MINING INDUSTRY IN THE NORTHWEST

HEARING

BEFORE THE

SUBCOMMITTEE ON NATURAL RESOURCES
DEVELOPMENT AND PRODUCTION

OF THE

COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE

NINETY-NINTH CONGRESS

SECOND SESSION

ON THE

STATE OF THE MINING INDUSTRY IN THE NORTHWEST

COEUR d'ALENE, ID, AUGUST 20, 1986

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STATE OF THE MINING INDUSTRY IN THE NORTHWEST

WEDNESDAY, AUGUST 20, 1986

U.S. SENATE.
SUBCOMMITTEE ON NATURAL RESOURCES DEVELOPMENT AND PRODUCTION,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Coeur d'Alene, ID.

The subcommittee met, pursuant to notice at 10 a.m., in the Coeur d'Alene Convention Center, Coeur d'Alene, ID, Hon. John W. Warner, presiding.

Present: Senators Warner, McClure, Symms, and Congressman Craig.

Also present: Robert L. Terrell and Patrick Sullivan, professional staff members; and Patricia J. Beneke, counsel for the minority.

OPENING STATEMENT OF HON. JOHN W. WARNER, A U.S. SENATOR FROM THE STATE OF VIRGINIA

Senator **WARNER**. Ladies and gentleman, I'm John Warner, Senator from the Commonwealth of Virginia. I say Commonwealth because indeed that is my State, but I feel that this State is very close to being my second. I came here in 1943 at the age of 16 and worked for the U.S. Forest Service fire fighting. I looked at the smoke clouds as I flew in and reflected back on those days and watched, as they were, the fires, the trail crews and the blister rust. Preceding me the summer before, 1942, was my distinguished colleague, Mr. McClure, who worked in similar camps, and then we both went in the Navy in World War II. When I came out of the Navy, the first thing I wanted to do was come back to Idaho and indeed I did that in 1947 and worked again for the U.S. Forest Service.

So I thank you for once again welcoming me back to this beautiful, wonderful State and this particular city, or town as it was called in those days, Coeur d'Alene. I can recall, Jim, that quite a few of the streets that are paved today were not paved then. The same warm hospitality present today was existent in those days. So you'll forgive me for indulging in a little quiet reminiscing, but I feel very much at home here.

Now, before we launch into some opening statements, there are a few items that will be of interest to some, namely, that our hearing record will remain open for a period of 2 weeks to receive other written statements from those unable to appear before the subcommittee today. I am advised that a written statement will be submitted for the record from Stephen L. Brown, Staff Representative of the United Steel Workers of America. Witnesses should be asked to summarize their statements today and that there entire testimony in written form will be admitted to the record of this subcommittee.

Also, there is a sign-up sheet which has been placed right by the door for those desiring to have copies of the printed record of today's proceedings. Please provide your name, address and zip code.

Now, it's my privilege in the Senate to serve on the Energy Committee with my distinguished friend Mr. McClure, and I've been here some 5 years now and watched him, Senator Symms, Congressman Craig and indeed the Congressional delegation from this State and the Western States, reminding those of us from the East of the worsening plight of the mining industry.

During the past year my two colleagues in the Senate and I have discussed the possibility of having a hearing out here such that the U.S. Senate could receive first-hand in a major mining State the testimony directly from the witnesses in this area and the adjoining states.

I'm also on the Senate Armed Services Committee and there we monitor the strategic stockpile and other issues relating to criticality of minerals and metals and other raw materials for our national defense. That is a very serious question. You need only look at the instability throughout the world today and particularly in South Africa to recognize that this nation which is an island nation, and indeed it is, we do have our friendly neighbors to the north, Canada, and to the south, Mexico. This nation is heavily dependent on raw materials from all over, not only for our national defense but for our economy. And that dependence cannot be allowed to go to such a state that if the sea lanes of the world are ever severed or the origins of these materials are ever taken away due to political disability or otherwise, that we could not look to home for a backup source. It's for that reason that I and my colleagues and Congressman Craig are here today trying to assess your thoughts as to how best the United States of America can protect itself for the future.

I now turn to my senior colleague, chairman of the full committee, Mr. McClure.

STATEMENT OF HON. JAMES A. McCLURE, A U.S. SENATOR FROM THE STATE OF IDAHO

The **Chairman**. Thank you very much, Senator Warner. I had hoped that everyone in this room realizes that when Senator Symms and I asked the Chairman of the Subcommittee to hold a hearing in Idaho, we were asking him to take something from his own personal time and activities in order to do something not only for us but for the entire mining industry and the security of this country. I appreciate his opening statement, but I think we should underscore the fact that he not only honors us by his willingness to hold this hearing, but also it's a mark of his own dedication to the issues we're going to discuss today. There are serious and pressing problems in a lot of areas of the world, and I know that he's taken himself away from other activities in order to share that time here, and I want to publicly express my thanks for his willingness to assist in this way.

He has indicated some of the background and the reasons for which he shares some of the concerns that we have. In his own state he has an extensive fighting industry in the vast coal fields of Virginia, and I know of his work to protect and enhance that mining industry in his home state. We've discussed the impacts of various federal policies upon the mining that affects both the coal mining in the east and in his state and in hard-rock mining in the west in our state. They are not precisely the same, but they are similar in many respects, and we welcome a Senator from the coal country to the hard-rock mining country.

The dilemma faced by the miners in Virginia are similar in many respects to those facing the miners in Idaho. Although different minerals for different purposes, both the coal and silver industries are indicative of U.S. troubled industrial base. Along with mining, agriculture and other basic U.S. industries are watching their markets dwindle in the face of foreign competition. That base erosion diminishes our capacity to produce and produce efficiently and competitively in a world that is growing increasingly competitive. There are many reasons for this decline. Among them are too much government regulation and overzealous environmental regulation. I believe that the deterioration of our natural resource base could lead this country into an economic slump worse than any we've experienced in over a half a century.

When silver concentrates can be sent from the Silver Valley to Belgium for smelting and returned to this country at a lower cost than if the smelting were done here, we should take a hard look at what the future holds.

Senators Warner, Symms and I have been looking at the problems the industry faces and trying to find solutions for some time Together we have attempted to return to Congress control over the stragegic and critical materials stockpile. For years the stockpile goals have been manipulated for economic and budgetary purposes, while the strategic and defense concerns relating to these minerals are totally ignored. There is severe national defense implications associated with selling off the stockpile, and we will not rest until the Administration realizes that.

In addition, the administration at times seems to forget the implications of their actions on their own people. For example, the White House has repeatedly attempted to sell stockpiled silver. For someone in northern Idaho it doesn't take long to realize how such an action would seriously depress the price of silver and throw our domestic mining industry into a tail spin. We don't need that kind of help on top of all of the other problems we have.

To date we have been successful in preventing silver disposal. Disposal of other stockpiled materials have forced the country into dependence on South Africa and the Soviet Union for many of the minerals critical to our national security and our industrial base. Such trading practices do not lend stability to the availability of these resources. Our experience with OPEC and their control over oil supplies is a prime example and a grim reminder of pitfalls the country faces when it loses resource independence. Still, the recent history and immediate future, for that matter, of our mining industry has had some few bright spots.

Just last Thursday when the Senate was debating whether to invoke economic sanctions on South Africa, Senators Symms, Warner and I helped kill a provision authorizing the President to sell U.S. gold reserves in order to drive the world gold price down with the reasoning being that it would hurt South Africa as a major gold producer. That's one of the ridiculous, ludicrous proposals I have heard in all my life. And yet the proponents of that proposal don't seem to understand that the first people driven out of business is the highest cost producers, not the lowest cost producers. And South Africa is the lowest cost producer of gold. They are the ones who would survive, while everyone else would be hurt. That simple lesson of economics seemed to fail to get through to some of the most brilliant minds in the Senate, which makes you pause for a moment, doesn't it, exactly where the Senate is coming from.

These same producers, it should be noted, operate many of the country's silver mines as well, the producers of gold in this country. In some cases the profits from the gold operations are the only thing that keeps the silver operation going. In addition, the silver bullion coin bill was signed into law last year, will be minted and available to the public on October the 1st. On top of that, a recently passed amendment Senator Hecht and I passed that requires that the new gold bullion coins to be issued on October 1st, too, must be minted only from newly mined U.S. gold.

During consideration of the tax reform measure, Senator Symms and I attached an amendment which permits gold and silver to be used as investments in individual retirement accounts. I am confident this will provide an additional way to use silver and gold. However, it's necessary that we look for new and creative ways to use the valuable minerals we produce here in the Silver Valley and throughout the Northwest.

A proposal Senator Symms and I have been working on for several months also has a potential for good news for the mining industry that we've not discussed publicly before because there are some sensitive ongoing negotiations, but it has real promise. Senator Symms has conversations with Secretary of the Treasury Baker, and I believe the Secretary has indicated that he believes the statement the Senator is going to make today will not disturb those negotiations. They are sensitive negotiations and very difficult to bring about.

With that, I will turn the floor over to my distinguished colleagues. I am particularly happy to be able to recognize the presence of the Chairman of the subcommittee, Senator Warner from Virginia, as I said earlier. And we have a whole panel of distinguished witnesses.

Before yielding the floor at this point, though, I want to make one reference to what—the announcement the Chairman has already made. And I make that annoncement only because—or that statement only because there has been some publicity attendant upon this.

We have for several weeks given notice to the public of the existence of these hearings. Some members of the public apparently didn't get that word or thought they should have had a special invitation. And if they didn't ask to appear as witnesses, they weren't automatically put on the witness list because we didn't know of their desire to appear. I am delighted Mr. Brown with the Steelworkers will file a statement. I regret he wasn't able to attend personally, because he would have been more than welcome here today.

Certainly the working men and women who work in the industry have as great a stake as anyone else has in the success or failure of the mining industry. I don't think anybody can be blind to the plight that lies in the Silver Valley just to the east of us where the unemployment rate is down to 43 percent. I say down because a lot of people have already left the community. And that is a tragedy beyond any imagining to people who haven't tried to live with that. So, the representatives of the people who work in those mines are certainly more than welcome at these hearings. And I am glad he is going to file a statement. Thank you very much. Now we will hear from Senator Symms.

STATEMENT OF HON. STEVE SYMMS, A U.S. SENATOR FROM THE STATE OF IDAHO

Senator SYMMS. Thank you, Mr. Chairman and Mr. Chairman. I personally wish to join with my senior colleague to welcome you to our state, and I hope that your accommodations are satisfactory in our humble abode here on the shore of the lake.

Senator WARNER. My first time in Coeur d'Alene in 1943 was in a tent.

Senator SYMMS. I talked to Senator Warner last week, I might say for the audience, and told him that we would have a surprise for him when he arrived at the Coeur d'Alene Resort, and I think he really didn't expect it to be quite this much. But it is beautiful. And we are delighted to have you here and thank you for sharing of your valuable time, because I know how busy you are and how we all are so busy, but to come out here we appeciate it, our mining industry and the men and women who work in the mines appreciate having this official U.S. Senate Natural Resources Development and Production Subcommittee of the Energy and Natural Resources Committee coming to Idaho and have a meeting so they don't have to be out the expense to go all the way back to Washington to make their views heard, and so we do appreciate it.

I also appreciate the opportunity to comment on what the government can do and what it cannot do to help maintain a viable mining capability. Senator McClure commented at the outset of his statement that one of the problems of the mining industry is that there has been too much government overzealous regulation.

I think you will hear a lot of that today, Mr. Chairman. Some of the mining executives that will testify about some of the problems that we have with a myriad of the alphabet through agencies that we have from MSHA to OSHA to EPA to Environmental Impact Standards, the Clean Air Act, the Clean Water Act, the Super Fund, and so on and so forth.

There's an endless parade of regulators giving our mining companies all kinds of advice on how they can do business, and it's all costly and makes them less competitive than some of the competition overseas. But I think we should keep in perspective that not only this nation has benefited from a strong mining industry, but our State of Idaho has benefited from a mining industry for over a hundred years.

Mining has been a major contributor to the economy of Idaho, to jobs and to the nations' mineral needs. Right now the nation's most important silver mining district, the Coeur d'Alene District which, incidentally, Mr. Chairman, celebrates the mining of over a billion ounces of silver this part year, a billion ounces I repeat, has slowed to a stand-still by low metal prices. The great agricultural chemical industry of southern Idaho suffers from the lethargic national agricultural economy also. These facts coupled with the national inclination to misuse the facts during the years divisible by two, by four and by six make it essential that the Congress and the regulatory agencies and the public understand the difference between political posturing and facts. These hearings to which you have invited those who actually produce the Idaho's minerals are important to get the record straight and to find some of the answers of what those of us in the Congress may be able to do to help the mining industry. And I will give you an example.

Recently a proposal to save the Idaho silver mining industry called for tariffs on foreign silver or for production loans to domestic silver producers. The idea is catchy to the public and inviting to the investors, but it is not as easily workable as it might sound for both the long term health of the industry and for the nation's delicate foreign trade balance. It is not supported by the major elements of the mining industry.

Another proposal which Senator McClure made reference to and very clearly stated his opposition to was the proposal to dump U.S. gold on the world market for the purpose of depressing the price, therefore depressing the South African Economy. I will skip over that, because I think Senator McClure covered that very well and very accurately to what the impact would be. We were prepared, if we were not successful in stopping that, on the Senate floor last week to offer an amendment which would have the government replace the gold that it sold dollar for dollar with silver so that the American people would not lose their strategic and monetary reserves from the storehouse at Fort Knox.

Mr. Chairman, last week I had the pleasure to meet with Treasury Secretary Jim Baker. The first thing he did when we met was to hand me two coins. I didn't get to keep them, however, I will say that for the record. One was the new $50 gold coin, and the other was the new one ounce silver dollar. They were only preliminary strikes, but they are beautiful. And it was nice to see the Secretary appreciating the beauty of the coins and see the benefits of the hard work that this Congressional delegation has put in to passing that legislation with the support of the industry over a period of about four years to have that become a reality. This will be the most efficient use that we have put to silver, to monetize this silver and put it in the hands of the American people. And those first coins will be available for market the 1st of October. The Secretary was very excited about the feasibility of seeing good response in the market with those coins.

The main purpose of the meeting, however, was to personally discuss with the Secretary a plan which I have been working on with Congressman Craig and Senator McClure for months. We have talked over the phone, Secretary Baker and I, several times on this, but this was our first opportunity to sit down and talk about it face to face. We have been looking for a solution to the silver problem in Idaho for a long time.

The Idaho silver industry has come to us with their ideas for reversing the slide in silver prices this spring. Their ideas were incorporated into my plan for addressing the real problem of the silver miners. An excess supply overhangs the world market. If we can make the silver industry profitable, we could also help a large segment of the minerals industry for which silver is a by-product. I have not publicly announced many of the details of the plan because of the delicate nature of forging a program that will actually get Idaho miners back to work. As I said, we have been working with not only the Treasury Department but with Senator McClure, Congressman Graig, the governments of Mexico and Peru, the World Bank, the Sliver Institute and investment bankers in New York.

The summary of the basic bottom line of what we are trying to do is to restore the use of silver in the monetary system in the western hemisphere so that it can be more efficiently used as a monetary reserve and recognized as a storehouse of value as well as providing stability to the economy of Mexico and Peru; and in the meantime that will help the miners in the State of Idaho and other western states. We also know the basic problem of silver depression is the world glut. Either production has to be reduced, or consumption has to be increased.

There have been suggestions to make Mexico and Peru, the world's largest silver producers, to cut back on production. Now, just as we don't want to see jobs lost in Idaho, the Mexicans and Peruvians are just as adamant that their miners won't be unemployed. One of the things that our program would do would be to have the Mexican government purchase their domestic silver production using bank notes which would be issued by the Mexican Central Bank while another point would decrease their domestic circulation of silver coinage. As part of our plan, the world producers would participate in an advertising program based on the DeBeer's diamond and gold industry successful campaigns.

The Silver institute discussed this proposal with the government and industry officials both domestically and abroad. Most people believe such a campaign will help solve the problems of the silver industry in the long term, but that's not going to help us in the next three years. What we are trying to do for the short term would be instead of going solely into the commodity markets with the silver now being produced in excess in Mexico and Peru it go into the financial markets. The financial markets, of course, will not hold this silver forever, so the promotion campaign ties in with the increasing consumption of silver.

With the silver program we are proposing, we can begin to pull ourselves out of the pit. Secretary Baker is very responsive to the plan. The specifics of the plan, of how the details—of actually selling the finanical instruments which would be backed with silver hopefully at a lower interest rate, because currently Mexico, the best rate they could get is about 58 cents on the dollar when they go into the bond market because of lack of investor confidence in their economy, and the Treasury Department here believes that could be dramatically improved with silver backed bonds by the Mexican government. Thus, it fits in with the Baker plan to try to restore the economies of the Third World countries.

All of the specifics are not set, but the Secretary did give a commitment to help us, he likes the idea and is contacting the appropriate officials in Mexico and Peru to indicate the U.S. Treasury Department's approval. He said he will assist in helping move this program along.

Now, there are things which the Congress could do in addition to this for the mining industry of Idaho and the nation. Congress can recognize the importance of the depletion allowance to the mining industry, the allowance which provides for a continued reserve base in the future. It can reduce the cost of government, the major and growing share of operating costs represented by taxes, control and excessive regulations. Congress can increase our competitiveness in world metal markets by bringing the American dollar in balance with other currencies by control of the national debt.

Congress can demand free and fair, and I emphasize fair, trade policies with our trading partners. Congress can encourage a major increase in the private sector basic and applied research into new and more competitive mineral technolgy through the tax system, and they can encourage young minds to accept that challenge through university grants.

Some things cannot be done by Congress in spite of recent statements that we hear on the evenly divided years. Congress cannot set the price of metals in the world market. It cannot materially improve either our competitiveness or our long-term viability in the minerals business through trade restrictions. It cannot shoot us in the foot by preventing the purchase of critical and strategic minerals from South Africa when the other source is the Soviet Union and expect the American public to follow blindly along. It cannot continue to produce counterproductive legislation such as massive land withdrawals in areas of major economic importance of critical and strategic minerals reserves. The domestic mining industry is truly dependent on a few in government to understand both its immediate and long range needs, the importance of the domestic mining industry to guide Congressional actions.

Mr. Chairman, your presence here today is an example of maintaining that understanding through listening to the producers who know the problems. It is critical, I believe, to maintain the Senate Energy and Natural Resources Committee under the chairmanship of Jim McClure and the Senate leadership in the strong, sensible hands it is now in. We will have the ability to exercise good judgment over western leadership on western problems only through maintaining that position. I hope you will make the content of these hearings known to the mining industry, the people of Idaho, to the nation. Thank you again, Senator Warner.

What I think I would say in summary is, we have some things we can do in the long term. Hopefully what we need to do in short term is do something that would benefit the profitability of production in the Silver Valley in the short term so the miners can get back to work and keep this very strong, important industry alive for our nation's security and for our state's economy. Thank you very much.

Senator WARNER. Thank you, Senator. Those of us in the Senate know you work tirelessly on this subject, and your voice rings out in the chamber of the United States Senate to help this industry.

We will now have our colleague from the House, Congressman Craig.

STATEMENT OF HON. LARRY CRAIG, A U.S. REPRESENTATIVE FROM THE STATE OF IDAHO

Mr. CRAIG. Thank you very much, Chairman Warner. And those words of welcome that have been extended by my two senior colleagues, the senior and junior senators in your body, and they come warmly from me. And we are awfully pleased to have you here in Idaho and especially pleased that you are here listening to and taking a record of the issue that will be presented in this hearing today. It is critical to our State, critical to the Pacific Northwest and I think critical to our Nation.

As the witness list shows, there are going to be many experts representing the mining industry here today to testify. Their knowledge and suggestions to help the mining industry regain its competitive advantage in the marketplace, I think knowing them, will prove insightful and helpful to people like ourselves who must then from that kind of information attempt to formulate public policy.

I would especially like to take this opportunity to recognize my senior Senator Jim McClure and junior Senator Steve Symms. When I came to the Congress, it was to these two gentlemen that I largely looked to find out about the details of public policy and legislation and public law that relates to the mining industry, because they had been long fighting the battle for the Idaho mining industry and of course continue to do so today. There is no question that their tireless leadership in this area has allowed the mining industry to maintain the presence that it has had, and I think the work we can do together today and in the future can insure that presence.

The mining industry in Idaho has proven to be a leader, Mr. Chairman, in discovering new technologies, has enhanced its competitive position in the independent marketplace. None of the miners, none of the execs of the mining companies you will hear today need stand second to anyone in the world as to the progress and the technology they've employed in their industry. The biggest challenge that now faces the domestic and Idaho mining industry, though, is to prove, I think, that a 1984 headline in the Business Week magazine article which was captioned, Mr. Chairman, "the death of mining." And the thrust of that article was to make it appear that the mining industry had joined the automobile industry and other major sectors of our economy, our industrial economy as to say that it was dying.

I am here today to tell you that the Business Week article written in 1984 was wrong and that the mining industry has made itself heard in Idaho and across the nation, lean and mean, and ready to face the challenges that are at our doorstep. But, Mr. Chairman, those challenges are extremely great.

The marketplace has changed dramatically over the last 15 years. The U.S. mining industry has the dominant force in the international marketplace historically. They were the suppliers of raw materials that helped produce the steel for our automobiles, the alloys for our jet engines, zinc to be used in casting, lead to be used in factories. As the people here today can attest, things have changed dramatically.

Foreign governments have gone into the business of subsidizing major mining operations, and the immediate impact has been the decline in price and a huge oversupply of metals that hover over the marketplace.

The United States, we, the Congress, our government through its funding of international lending institutions has played a major role in creating the problems which now plays havoc in our mining industry. Our government has allowed American dollars to be used to fund the development of major foreign mining projects without any regard to the impact that they might and now have on our domestic mining industry.

The World Bank is an excellent example. As a country, we contribute money to the funding of the World Bank efforts, and we contribute more than any other nation in the world. The World Bank has lent billions of dollars to foreign countries; the bank does not lend money directly to fund mining projects, but then the money goes through these governments of these countries into economic development, and in many instances that economic development has fallen into the form of new and very extensive mining programs. It's a Catch 22. The foreign governments with the huge debt liability then it receives attempts to offer and develop an economy and a cash flow. And let's take, for example, the case of copper.

The government then produces the copper, sells it in the world market to develop currencies to pay off its loan. And the loan doesn't get paid, and of course the interest accrues, and there is ever an accelerating point not against the price in the marketplace but simply to produce for the purpose of developing cash flow to pay off the loan. And the large supply grows, and the market drops worldwide, and we have our industries where they are today.

The foreign governments then flood our market, flood the world market with underpriced metal to achieve the capital that I mentioned, and the prices goes down whether it's copper or silver or lead and zinc, and the marketplace then is straddled and saddled with a huge supply.

Senator McClure and Senator Symms in the case of silver have mentioned today an idea that has now taken form in a white paper and a concept of Senator Symms which has been approached with the Secretary of the Treasury while the industry and the Institute have taken it abroad and into the producing nations of silver to discuss a mechanism and possibly a plan and idea that can take root that will solve this problem here, the silver problem for a period of time. But it will not solve the overall problem that the domestic mining industry in this nation faces unless we recognize our policy to our foreign neighbors and that policy as a contributor of tax dollars to large loan programs that create the metals who subsidized financing in mining projects.

I have a little pamphlet with me today, Mr. Chairman, that was put out by the aluminum industry. It talks about the basic industry and more specifically the aluminum industry. It talks about the comment of the industry and its importance in the Pacific Northwest; but more importantly it talks about the vulnerability as a nation in the production of strategic and critical minerals necessary for defense of our domestic manufacturers. And you've mentioned that so well here today.

As a country, we now import more than 60 materials that have important uses in U.S. industry and/or national defense. The countries we import these materials from, as you mentioned, are far from stable. Our reliance on imported strategic and critical minerals from these countries makes us open, easy targets for embargoes akin to the oil cartel efforts of the 1970's. On at least four occasions since World War II, U.S. supplies of certain strategic materials have been partially or wholly cut off or jeopardized. The first episode occurred in 1949, when the Soviet Union halted export of magnesium and chromium to the United States after the Soviet blockaded of Berlin in 1948. The second resulted from the U.S. decision in 1966 to participate in the U.N. embargo of chromium from Rhodesia, now Zimbabwe. And the 1969 strike by nickel workers in Canada created a third supply problem.

I am discussing the importance of strategic and critical minerals because it shows how the United States perceives, I think, our domestic mining industry. For much of our early history, this nation's primary attention was directed toward providing the single necessities of life, food, shelter and clothing. In the historical sequence the mineral industry never seemed to attract the same degree or broad base public attention as does agriculture despite the frequent efforts to publicize the basic importance of this particular insustry and the resources it creates to this country. It simply has not worked.

Senator McClure and Senator Symms have spoken long and loud, publicly, nationally and internationally about this issue. Although it is heard and received here at home extremely well, it simply does not have the impact abroad because there is not the basic understanding that is so necessary to be understood by this nation about this industry if we are to survive the threats that it currently experiences. If we want to stop the attrition of our metals industry and our materials industry, then we must show that we care and take bold action that makes us less vulnerable to the potential that I have earlier spoken of with our Third World suppliers. Helping our mining industry to compete in a fair marketplace is the first step of many that I think we need to take.

Mr. Chairman, in conclusion, our mining industry is hurting, but it has not given up. It is an international market in which we must compete, and we all recognize that. But the mining industry of Idaho and across the nation simply asks that it be allowed to compete in a fair and equitable way. Let's stop canabalizing through the lending of monies to foreign governments for projects that unfairly compete with the American mining industry. Let's end our near total reliance on foreign countries for strategic and critical materials by establishing policies that encourage domestic production of those vital supplies. And let's finally acknowledge the mining industry and its place in our economy. Let's admit we can't afford to be beholding to less stable governments for minerals that we can produce ourselves. Let's for the first time assert loudly and clearly for the American miner that we represent them and that we will fight to save them. When we do that and free the industry to compete fairly in the international marketplace, I think we will find that Mark Twain's famous quote applies here. "The reports of our demise have been greatly exaggerated."

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Craig follows:]

OPENING REMARKS

OF

CONGRESSMAN LARRY E. CRAIG

BEFORE THE

SUBCOMMITTEE ON NATURAL RESOURCES

DEVELOPMENT AND PRODUCTION

AUGUST 20, 1986

MR. CHAIRMAN, SENATOR WARNER. LET ME THANK YOU FOR TRAVELING TO IDAHO AND HOLDING THIS IMPORTANT AND VALUABLE HEARING ON THE STATE OF THE MINING INDUSTRY IN THE PACIFIC NORTHWEST.

AS THE WITNESS LIST SHOWS, THERE ARE MANY EXPERTS REPRESENTING THE MINING INDUSTRY HERE TODAY. THEIR KNOWLEDGE AND SUGGESTIONS TO HELP THE MINING INDUSTRY REGAIN ITS COMPETITIVE ADVANTAGE IN THE MARKETPLACE WILL PROVE INSIGHTFUL AND HELPFUL FOR PEOPLE LIKE OURSELVES WHO FORMULATE PUBLIC POLICY.

I WOULD LIKE TO TAKE THIS OPPORTUNITY TO RECOGNIZE SENATOR SYMMS AND SENATOR McCLURE. THEIR LEADERSHIP AND THEIR EFFORTS TO FIND SOLUTIONS TO THE PROBLEMS NOW CONFRONTING OUR DOMESTIC MINING INDUSTRY AND OUR OWN IDAHO MINING INDUSTRY HAS BEEN TIRELESS. WITHOUT THEIR LEADERSHIP, THE TASK THAT LIES AHEAD OF US WOULD BE MUCH HARDER.

CURRENT CHALLENGE TO THE MINING INDUSTRY

THE MINING INDUSTRY IN IDAHO HAS PROVEN TO BE A LEADER IN DISCOVERING NEW TECHNOLOGIES THAT ENHANCE ITS COMPETITIVE POSITION IN AN INTERNATIONAL MARKETPLACE. THE BIGGEST CHALLENGE THAT NOW FACES THE DOMESTIC AND IDAHO MINING INDUSTRY IS TO PROVE A 1984 HEADLINE WRONG. THE HEADLINE OF A BUSINESS WEEK ARTICLE WAS, "THE DEATH OF MINING" AND THE THRUST OF THE ARTICLE WAS TO MAKE IT APPEAR THAT THE MINING INDUSTRY HAD

JOINED THE AUTO INDUSTRY AND OTHER SECTORS AS DECLINING BASTIONS OF THIS NATION's INDUSTRIAL BASE.

I'M HERE TO TELL YOU TODAY, THAT THE BUSINESS WEEK ARTICLE WRITTEN IN 1984 WAS WRONG AND THE MINING INDUSTRY HAS MADE ITSELF LEAN AND MEAN, READY TO FACE THE CHALLENGES ON ITS DOORSTEP. BUT MR. CHAIRMAN THE CHALLENGES ARE GREAT.

THE MARKETPLACE HAS CHANGED DRAMATICALLY OVER THE LAST 15 YEARS. THE U.S. MINING INDUSTRY WAS THE DOMINANT FORCE IN AN INTERNATIONAL MARKETPLACE. WE WERE THE SUPPLIERS OF THE RAW MATERIALS THAT HELPED PRODUCE STEEL FOR OUR AUTOS, ALLOYS FOR JET ENGINES, ZINC USED FOR DIE CASTING AND LEAD USED FOR BATTERIES. AS THE PEOPLE HERE CAN ATTEST, THANGS HAVE CHANGED.

FOREIGN GOVERNMENTS HAVE GONE INTO THE BUSINESS OF SUBSIDIZING MAJOR MINING OPERATIONS AND THE IMMEDIATE IMPACT HAS BEEN THE DECLINE IN PRICE AND A HUGE OVERSUPPLY OF METALS THAT HOVERS OVER THE MARKETPLACE DEPRESSING THE PRICE.

THE UNITED STATES, THROUGH ITS FUNDING OF INTERNATIONAL LENDING INSTITUTIONS, HAS PLAYED A MAJOR ROLE IN CREATING THIS PROBLEM WHICH NOW PLAYS HAVOC WITH OUR MINING INDUSTRY. OUR GOVERNMENT HAS ALLOWED AMERICAN TAX DOLLARS TO BE USED

TO FUND THE DEVELOPMENT OF MAJOR FOREIGN MINING PROJECTS WITHOUT REGARD FOR THE IMPACT THAT IT WOULD HAVE ON OUR MINING INDUSTRY.

THE WORLD BANK IS AN EXCELLENT EXAMPLE. AS A COUNTRY, WE CONTRIBUTE MORE TO THE FUNDING OF THE WORLD BANK THAN ANYONE ELSE. THE WORLD BANK HAS LENT BILLIONS OF DOLLARS TO FOREIGN COUNTRIES. THE WORLD BANK DOES NOT LEND MONEY DIRECTLY TO FUND MINING PROJECTS, BUT THE MONEY GETS THERE THROUGH THE GOVERNMENTS OF THOSE COUNTRIES WHO ARE NOT REQUIRED TO REPORT OR DISCLOSE - HOW THEY ARE SPENDING IT.

A CATCH 22 SITUATION OCCURS. THE FOREIGN GOVERNMENT, WITH HUGE FOREIGN DEBT LIABILITIES, USES THE MONEY IT RECEIVES FROM THE WORLD BANK TO DEVELOP A COPPER PROJECT. THE GOVERNMENT THEN SELLS THE COPPER TO GET CURRENCY IN ORDER TO REPAY THE LOAN. THE LOAN DOESN'T GET PAID BACK, BECAUSE INTEREST IS ACCRUING AND IN ORDER TO KEEP THE COPPER PROJECT GOING, THEY NEED AN INJECTION OF MONEY FROM THE FOREIGN LENDING INSTITUTIONS. THE PROBLEM JUST GETS WORSE.

THE FOREIGN GOVERNMENT THEN FLOODS THE MARKETPLACE WITH UNDER PRICED METALS TO ACHIEVE CAPITAL AND THE PRICE OF THE METAL GOES DOWN. THE PRICE STAYS DOWN, AS IT HAS FOR COPPER AND SILVER, AND THE MARKETPLACE IS STILL SADDLED WITH AN EVER GROWING SURPLUS.

A PLAN THAT JIM AND STEVE HAVE BRIEFLY OUTLINED HAS GREAT POTENTIAL TO HELP OUR SILVER INDUSTRY. IT IS DESIGNED TO TAKE SURPLUS SILVER OUT OF THE MARKET AND USE IT AS SECURITY TO STRENGTHEN THE CURRENCIES OF MEXICO AND PERU. IT IS A PLAN DESIGNED TO HELP THESE STRUGGLING COUNTRIES REPAY THEIR FOREIGN DEBTS AND STABILIZE THE PRICE OF SILVER.

SOUND COMPLICATED. IT IS. BUT IT IS A PROBLEM THAT WE AS PUBLIC POLICY DECISION MAKERS MUST CONFRONT. WE MUST STOP THE RAMPANT USE OF U.S. TAXPAYER DOLLARS TO FUND THE DEVELOPMENT OF FOREIGN MINING PROJECTS AT THE EXPENSE OF OUR DOMESTIC INDUSTRY. IF WE FAIL TO DO SO, THE BUSINESS WEEK ARTICLE I SPOKE ABOUT AND ITS HEADLINE, MAY RING TRUE.

U.S. VULNERABILITY

I HAVE A LITTLE PAMPHLET WITH ME TODAY, THAT WAS PUT OUT BY THE ALUMINUM INDUSTRY. IT TALKS ABOUT THE BASIC INDUSTRIES AND MORE SPECIFICALLY, THE ALUMINUM INDUSTRY. IT TALKS ABOUT COMMITMENT TO AN INDUSTRY THAT IS IMPORTANT TO THE PACIFIC NORTHWEST AND THE NATION. BUT MORE THAN THAT, IT TALKS ABOUT OUR VULNBRABILITY AS A NATION, IN THE PRODUCTION OF STRATEGIC AND CRITICAL MATERIALS NECESSARY FOR DEFENSE AND OUR DOMESTIC MANUFACTURERS.

AS A COUNTRY, WE NOW IMPORT MORE THAN 60 MINERALS THAT HAVE IMPORTANT USES IN U.S. INDUSTRIES OR NATIONAL DEFENSE. THE COUNTRIES WE IMPORT THESE MINERALS FROM ARE FAR THAN STABLE GOVERNMENTS. OUR RELIANCE ON IMPORTED STRATEGIC AND CRITICAL MINERALS FROM THESE COUNTRIES MAKES THE U.S. OPEN FOR EMBARGOES AKIN TO THE OIL CARTEL OF THE 1970s.

ON AT LEAST FOUR OCCASIONS SINCE WWII, U.S. SUPPLIES OF CERTAIN STRATEGIC MATERIALS HAVE BEEN PARTIALLY CUT OFF OR PLACED IN JEOPARDY. THE FIRST EPISODE OCCURRED IN 1949 WHEN THE SOVIET UNION HALTED EXPORTS OF MANGANESE AND CHROMIUM TO THE U.S. AFTER THE SOVIET BLOCKADE OF BERLIN IN 1948.

THE SECOND RESULTED FROM THE U.S. DECISION IN 1966 TO PARTICIPATE IN THE U.N.'s EMBARGO ON CHROMIUM FROM RHODESIA (now Zimbabwe). A 1969 STRIKE BY NICKEL WORKERS IN CANADA CREATED THE THIRD SUPPLY PROBLEM.

I AM DISCUSSING THE IMPORTATION OF STRATEGIC AND CRITICAL MATERIALS, BECAUSE IT SHOWS HOW THE UNITED STATES PERCEIVES OUR DOMESTIC MINING INDUSTRY.

FOR MUCH OF OUR EARLY HISTORY, THE NATION's PRIMARY ATTENTION WAS DIRECTED TOWARD PROVIDING THE SINGLE NECESSITIES OF LIFE -- FOOD, SHELTER, AND CLOTHING. IN THIS HISTORICAL SEQUENCE, THE MINERAL INDUSTRY NEVER SEEMS TO ATTRACT THE SAME

DEGREE OF BROAD-BASED PUBLIC ATTENTION AS DOES AGRICULTURE. DESPITE THE FREQUENT EFFORTS TO PUBLICIZE THE BASIC IMPORTANCE OF MINERAL RESOURCES TO AN INDUSTRIAL SOCIETY, THE MINERAL INDUSTRIES TEND TO REMAIN "JUST ANOTHER PART OF INDUSTRY." PUBLIC CONCERN ABOUT THE MINERAL INDUSTRY TENDS TO BE LOCALIZED RATHER THAN GENERAL. THERE ARE TEMPORARY PERIODS OF NATIONAL AWARENESS ABOUT WARTIME MATERIALS SHORTAGES OR ENERGY INTERRUPTIONS RESULTING FROM POLITICAL UPHEAVALS. BUT THESE HAVE NOT SPURRED CONGRESS TO ESTABLISH A WHOLE SPECTRUM OF POLICIES AND THE RULES TO PROTECT AND NURTURE THE MINERAL INDUSTRIES IN PARTICULAR.

IF WE WANT TO STOP THE ATTRITION IN OUR MINERAL INDUSTRIES, THEN WE MUST SHOW WE CARE AND TAKE BOLD ACTION THAT MAKES US LESS VULNERABLE TO THE VAGARIES OF FOREIGN COUNTRIES.

HELPING OUR MINING INDUSTRY TO COMPETE IN A FAIR MARKETPLACE IS THE FIRST STEP OF MANY THAT WE NEED TO TAKE.

CONCLUSION

MR. CHAIRMAN. OUR MINING INDUSTRY IS HURTING, BUT ITS HAS NOT GIVEN UP.

IT IS AN INTERNATIONAL MARKET IN WHICH WE MUST COMPETE TODAY. WHAT THE MINING INDUSTRY IN IDAHO AND ACROSS THE NATION SIMPLY ASK IS TO BE ALLOWED THEM TO COMPETE EQUALLY.

LET's STOP CANNIBALIZING THROUGH THE LENDING OF MONEY TO FOREIGN GOVERNMENTS FOR PROJECTS THAT UNFAIRLY COMPETE AGAINST THE AMERICAN MINING INDUSTRY.

LET's END OUR NEAR-TOTAL RELIANCE ON FOREIGN COUNTRIES FOR STRATEGIC AND CRITICAL MATERIALS BY ESTABLISHING POLICIES THAT ENCOURAGE DOMESTIC PRODUCTION OF THOSE VITAL SUPPLIES.

AND LET's FINALLY ACKNOWLEDGE THE MINING INDUSTRY's PLACE IN OUR ECONOMY. LET's ADMIT WE CAN'T AFFORD TO BE BEHOLDEN TO OTHER, LESS STABLE GOVERNMENTS FOR THE MINERALS ON WHICH WE DEPEND. LET's ASSERT THAT IT IS NOT THE DUTY OF THE AMERICAN MINER TO ASSUME THE BURDENS CAUSED BY OTHER COUNTRIES' FAILED MONETARY POLICIES.

WHEN WE DO THAT AND FREE THE INDUSTRY TO COMPETE FAIRLY IN THE INTERNATIONAL MARKETPLACE, IT THING WE'LL FIND THAT MARK TWAIN'S FAMOUS QUOTE APPLIES HERE: THE REPORTS OF OUR DEMISE HAVE BEEN GREATLY EXAGGERATED.

Senator **Warner**. Thank you, Congressman. We in the other body wouldn't like to ever say that those in the House of Representatives would equal us in terms of statements, but yours is equal to any we've had this morning. Well presented and well thought out, and a very, very good statement.

Now we will proceed, gentlemen, to receive the testimony from the first panel. And I would invite our two members of Congress to join us here at this table.

Panel I will consist of Robert C. Horton, Director of U.S. Bureau of Mines, U.S. Department of the Interior; and Mr. Lyn McKee, Director of the Idaho Operations Office, Environmental Protection Agency, Boise, Idaho.

Mr. Horton, nice to see you again. We traveled out together last night. And I hope you are well rested as I.

STATEMENT OF ROBERT C. HORTON, DIRECTOR, BUREAU OF MINES, DEPARTMENT OF THE INTERIOR

Mr. **Horton**. Thank you, Mr. Chairman. It is indeed a privilege to appear before your subcommittee today and a nice change to appear before a congressional committee in Idaho rather than on the Hill.

Perhaps I can set the stage in part for the industry witnesses that will follow me in an overview of the current situation in Idaho as well as in other Northwest States.

The trend of the mineral industry in the northwestern states—Idaho, Montana, Oregon, and Washington—over the years 1981 through 1985 has been a downward one. Low prices for copper, lead, and zinc, and increasingly stringent environmental regulations have forced closure of three major smelters in the region, interrupted copper mining in Butte, MT, and have curtailed lead-zinc-silver mining in the Coeur d'Alene, ID district. Wide fluctuations in silver prices have caused corresponding swings in silver production; currently depressed prices have recently shut down nearly 70 percent of the region's silver production capacity.

Exploration for metals, booming in the late 1970's, has slowed, except for gold deposits. Gold is the sole metallic mineral where production has steadily increased over the 5-year term, and remains the bright spot in exploration. Exploration for and development of nonmetallic mineral deposits have also enjoyed a significant increase in the last 2 years.

While the mining industry in the northwestern United States has experienced serious setbacks, there have been some positive developments. During 1985, the estimated value of nonfuel mineral production in the State of Washington increased around 11 percent from the previous year, reaching nearly $225 million. This improvement was attributed to significant increases in the production of diatomite, gold and peat.

Increased gold exploration by such companies as United Mining Corporation, Tenneco Minerals Company, Tillicum Gold Mines, Inc., Kerr Addison Mines Ltd., St. Joe Minerals Corporation, and Teck Corporation demonstrated the determination and initiative of our minerals industry. In addition, development at the Gold Hill Mine was begun by Vulcan Mining Company; Hecla Mining Company reported discovery of additional gold reserves at its Knob Hill Mine; and Asamera Minerals (U.S.) Inc.-Breakwater Resources Ltd. partnership began gold production at its Cannon Mine.

While declining metal prices during 1985 continued to affect northwest aluminum producers, Bonneville Power Administration devised a plan linking variable power rates to aluminum prices and offered it to northwest aluminum producers. This is an example of the cooperative effort which we seek to promote between the mining industry and utilities and other companies.

Nonfuel mineral production value in the State of Oregon showed a decrease from 1984 to 1985; however, this was significantly linked to a temporary shutdown at Hanna Mining Company's Riddle nickel operation which took place in order to permit installation of a new $13 million "wet screening" process—a good example of improved technology and innovative use of a new technique to increase efficiency in mining operations and enable production of lower-grade ores in a cost-effective manner.

Montana experienced a serious decrease of 10 percent in the value of nonfuel mineral production in 1985, due largely to decreases in silver and copper production and decreases in the value of gold. However, there was increased exploration activity in the State, with Asarco gaining permission to patent 101 mining claims for silver-copper deposits in the Cabinet Mountains and underground exploration conducted by Midas Gold Inc. at the Gold Coin Mine in the Georgetown district.

In addition, industrial minerals production value increased 6 percent from that of 1984. It is a pleasure to note that copper mining has resumed at Butte. Also, mine development is continuing at the Stillwater Complex platinum-palladium project, with $40 million to be spent on the project and initial production set for 1987. Recent events in South Africa and proposed legislative sanctions against that country have increased awareness and interest in the Stillwater project.

While Idaho maintains the position as the Nation's top-ranked silver producer, having reached a cumulative production of one billion ounces of silver from the Coeur d'Alene region last year, recent closings of the Sunshine Mine, Lucky Friday Mine, and Crescent Mine deeply concern many of us. Industrial minerals production value in Idaho increased 9 percent in 1985, with the largest gains for phosphate rock and Portland cement, and several companies are expanding and improving their processing facilities. The Bureau of Mines undertook a study last year to identify the importance of minerals in the Idaho economy, with emphasis on the employment and income that mining and minerals processing generated in the State economy, and copies are available from the Bureau. This study is being updated in light of recent closures.

As the agency charged with the responsibility of collecting and analyzing data on the mining and production of our Nation's minerals, the Bureau of Mines is very much aware of the critical problems facing the domestic mining industry: decreasing ore grades, increasing minerals recovery costs, increased costs of regulatory compliance, high capital costs, and competition from foreign companies which are sometimes subsidized by foreign governments or by multinational development institutions.

At the same time, we are aware of increasing U.S. dependency on foreign strategic and critical minerals and materials, and the importance of maintaining a viable domestic industry, both from the standpoint of national defense and our nation's economy. Consistent with its mandate to represent the concerns of the domestic mining industry, the Bureau of Mines seeks to recognize and encourage those companies which develop and utilize improved technologies to increase their production.

Much of the research carried out by the Bureau, often in cooperation with mining companies, takes place through our Spokane Research Center and at the Idaho National Engineering Laboratory. Before proceeding to describe some of that research, you should be aware that other Department bureaus, especially the U.S. Geological Survey, carry on research activities related to mining and the minerals industry in the Pacific Northwest.

In order to ensure that the domestic mining industry remains a viable part of our economy, mining and mineral extraction technologies must be improved, costs minimized, and unnecessary regulatory requirements removed. Recognizing this, the Bureau has been actively working with various companies in the Coeur d'Alene area on such problems as ground control, mine backfill, and waste disposal. Our Research Center at Spokane is a world leader in rock mechanics technology and mine fill mechanics technology.

Such technologies are very important to mining in Idaho and other areas where mining takes place in deep deposits and in rock subject to high tectonic stress. Older mining methods, such as the overhand stoping method, are subject to disruption caused by rock bursts occurring when stress builds up in the crown pillar above mining operations. Not only do such bursts disrupt the mining operation, but they also can injure or kill, as occurred in April of this year when one miner was killed and two others were injured by a rock burst.

To address this problem, the Bureau, in cooperation with Hecla Mining Company and the University of Idaho, is working to develop and evaluate new mining methods which minimize rock burst dangers. In 1979, the Bureau and Hecla introduced the underhand cut-and-fill mining technique of the Star Mine in northern Idaho. While the scope of that effort was limited to controlling sill pillar bursts, it also established the value of underhand mining as a rock burst deterent.

This technique involves mining of ore and placement of cement fill to provide a quality roof that has little tendency to burst. Key to this system is development of a competent fill that is reasonably inexpensive, can be placed in as dry of a manner as possible, and which can be transported to the mine workings at a reasonable cost.

The Bureau, Hecla Mining Company, and the University of Idaho are involved in the Lucky Friday Underhand Longwall (LFUL) project to test the feasibility of converting the entire mine to this mining method. Laboratory investigations are being conducted to gain a better understanding of the mechanics of rock fracture and bursting, and field measurements of movements and stresses induced by mining are being used to predict rock mass response to the mining and filling sequence. A key part of both the laboratory and field investigations is the identification of acoustical emission patterns which precede rock failure and rock burst incidents. Characteristic patterns are established in the laboratory, and field work correlates these patterns with events in the mine. This project continues today in spite of the closure of the Lucky Friday Mine because the Bureau and Hecla believe that the LFUL concept offers great hope for improving mine safety and efficiency and, hopefully, returning this mine to full production.

The Bureau has also established new techniques and procedures for instrumenting and monitoring rock behavior around mine operatings. Of particular importance have been our investigations associated with mine shaft construction of the Silver Shaft at the Lucky Friday Mine and the Caladay Shaft at the Caladay Mine.

Another research effort which the Bureau is carrying out in the Coeur d'Alene area deals with waste disposal and its effect on the environment. While some past mining practices have caused environmental problems, it is incorrect and unfair to presuppose that any mining activity automatically is related to environmental degradation. On the contrary, many companies have shown a strong interest in the development and testing of techniques for waste use, treatment, and disposal in an efficient and cost-effective manner.

The Bureau has been working on developing and evaluating methods of safely disposing of waste in a manner that would meet water quality requirements and be physically and chemically stable. In one study, a prototype waste structure was built using reslurried tailings, transported and placed on a river floodplain. The site was monitored to evaluate the effectiveness of the waste disposal concept and the influence this disposal had on water quality.

Results indicated that tailings could be safely placed in the floodplain and that water quality of the seepage water would meet current requirements. This would eliminate a need for lining the pond—a very expensive requirement. Also, sites developed in this manner could be utilized for other purposes, since the soil-bearing capacities are adequate for building construction. The Bureau has also been investigating methods to duplicate the mechanisms promoting leaching activities associated with heavy metal waste problems. Hopefully, an understanding of these mechanisms will enable us to develop methods to control such waste problems.

Research is also being carried out at the Idaho National Engineering Laboratory (INEL) with the support of the Bureau of Mines. Senator McClure, Senator Symms, and Congressman Craig are strong supporters of the Bureau's research program on strategic and critical minerals which seeks to (1) discover entirely new methods to produce certain strategic metals from low-grade domestic resources, and (2) develop methods to reduce the usage of critical materials through acceleration of replacement with substitute materials containing lesser amounts of critical materials, or none at all. INEL is presently involved with production technologies applicable to cobalt. The first method under study is improving the use of bacteria to accelerate leaching and to concentrate metal ions in the leachate through genetic engineering and bioenhancement.

The second method under study is the use of thermal plasmas (electric arcs) to accelerate chemical reactions, thereby dramatically improving the process economics. Two types of materials which offer promise as substitutes for alloy steel are ceramics and rapidly solidified alloys. Since existing technology does not permit fabrication of composite shapes made from either materials, another INEL research project is aimed at discovering joining methods which will enable complicated shapes to be fabricated. The laboratory is also conducting research into intermetallic compounds which can replace platinum catalysts.

Over the past year, the Bureau has developed a team of individuals and a process for interacting with the Environmental Protection Agency on mining issues, so as to interject appropriate data and resources early in the process of regulatory review. In December 1985, EPA published a report to Congress on mine waste, as required by the Resource Conservation and Recovery Act, which was to serve as a basis for formulating regulations. The Bureau raised a number of concerns regarding the report and offered several recommendations. EPA generally concurred with the Bureau's recommendations, and the two agencies will continue to work together on mine waste and related environmental issues.

Another example of the Bureau's cooperative efforts with EPA took place here in Idaho recently, when research personnel from the Spokane Research Center met with EPA Solid Waste Division staff to discuss utilization of Bureau-developed mine backfill technologies as a possible means of dispose of soil from the Bunker Hill area in abandoned underground mine voids.

Gentlemen, the Bureau constantly strives to work with industry, with Congress and with other agencies of the Federal Government to promote effective, cost-efficient and nationally-needed development of our country's mineral resources. We welcome your comments, cooperation and interaction at all times.

Senator **Warner**. Thank you, Mr. Horton.

We will now hear from Mr. McKee.

STATEMENT OF M. LYNN McKEE, DIRECTOR, IDAHO OPERATIONS OFFICE, REGION 10 ENVIRONMENTAL PROTECTION AGENCY

Mr. **McKee**. Good morning, Mr. Chairman and members of the Subcommittee. I am M. Lynn McKee, director of the Idaho Operations Office, of the Environmental Protection Agency (EPA), Region 10. It is a pleasure for me to be here this morning to discuss with you the effect of EPA's regulations on the viability of the domestic mining industry in the Northwest.

I would first like to discuss the various statutes and regulatory framework which govern the disposal of mining wastes. I will emphasize that EPA is fully committed to implementing the statutes under its purview with reasonable regulations. I will also address the effects of EPA regulations on Northwest mining operations and describe how site-specific mining problems are being successfully resolved through various regional and state approaches.

I. STATUTES AND REGULATIONS GOVERNING DISPOSAL OF MINING WASTES

A. Mining Waste Determination

As originally enacted, the Resource Conservation Recovery Act (RCRA) required EPA to conduct a comprehensive study on the adverse effects of mining wastes. Under the 1980 amendments to RCRA, EPA was further required to study the appropriateness of regulating mining wastes as hazardous wastes. EPA has completed the required study, and we have prepared our report to the Congress titled Wastes from the Extraction and Benefication of Metallic Ores, Phosphate Rock, Asbestos, Overburden from Uranium, Mining and Oil Shale.

In making the study, EPA found that most mining waste is, in fact, not hazardous. The study determined that 11 million metric tons of a total of 1.3 billion metric tons, of wastes produced each year by the mining industry is hazardous under the current criteria. Although those are very large quantities they constitute less than one percent of the total. The study further found that most mining sites are located in remote areas in the West where climates are drier and water tables are farther below the surface than in other areas of the country. In most cases, drinking water supplies and the nearest population centers are not likely to be threatened. Additionally, EPA found that many State and Federal agencies already have regulatory programs for mining waste.

After reviewing the public comments and other information available, the agency determined that regulations under Subtitle C were not warranted at this time. The regulatory determination was based not only on findings presented in our report to Congress, but also on comments presented at three hearings (March 6, 1986, Tucson, AZ; March 11, 1986, Washington, DC; and March 13, 1986, Denver, CO) or submitted to the docket prior to March 31, 1986. EPA conducted additional analyses, when possible, to clarify problems and reconcile contradictions between findings in the report and submitted comments.

Considering the large volume of wastes produced and other factors, EPA concluded that the current requirements for the control of hazardous wastes may be impractical, technically infeasible and environmentally unnecessary for mining wastes at this time. Moreover, EPA concluded that its concerns about actual and potential releases of hazardous contaminants into surface water, groundwater and air can be adequately addressed by designing a specific mining waste program using the flexibility provided under its solid waste management authority, RCRA Subtitle D.

Consequently, EPA will develop standards under Subtitle D of RCRA. One of our first steps will be to identify environmental problems and priorities for the application of controls at mining sites; for example, those with high acid-generation potential, radioactivity, asbestos and cyanide wastes. EPA will also consider developing risk-based managment controls, and corrective action and groundwater monitoring requirements. These standards would be designed to protect groundwater and surface water, and to control stability and direct contact problems from mining wastes.

In developing this program, EPA will use the information gathering authority provided by section 3007 of RCRA. We plan to work with the Congress, mining States, the mining industry and other interested organizations to develop an effective mining waste program under Subtitle D. We will shortly begin collecting the necessary technical, economic, and other relevant information needed for program development and we will complete our data analysis by late 1987. We hope to propose revisions to the Subtitle D criteria by mid-1988.

EPA is concerned with the lack of Federal oversight and enforcement authority over mining waste under Subtitle D and inadequate State resources to develop mining waste programs. It is our view that mining waste controls developed under Subtitle D should be backed up by Federal oversight and enforcement of mining waste management practices. The Administration will work with the Congress to develop the necessary authority. If EPA is unable to develop an effective mining waste program under Subtitle D, we may find it necessary to use Subtitle C authority in the future.

The effectiveness of the Subtitle D program depends on: (1) available State resources for designing and implementing a program tailored to the needs of each State, and (2) EPA's authority to oversee and enforce the program. In the interim, EPA will use RCRA section 7003 and sections 104 and 106 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to protect against substantial threats and imminent hazards. Mining waste problems can also be addressed under RCRA section 7002, which authorizes citizen lawsuits for violations of Subtitle D criteria.

In Region 10, we have particular cause for optimism about the Subtitle D approach. An innovative effort is being implemented by a task force in the State of Idaho, composed of representatives of the mining industry, environmental groups, academic experts and various levels of government. This task force is formally constituted as a Technical Advisor Committee to the Idaho Department of Health and Welfare, which is developing regulations and associated guidelines to prevent adverse water quality impacts from cyanide in gold/silver recovery processes in mining. The task force is examining the environmental issues involved in all aspects of cyanidation including design, construction, operation, closure and reclamation. We think this effort is particularly worth noting because of the attempt being made by the participants to develop a consensus among several different points of view prior to formal rulemaking. This type of cooperative effort shows great potential for other states in terms of both technical standards and creation of a forum in which such standards can be developed.

B. Underground Injection Control (UIC)

The UIC program regulates mining activities to the extent that they involve the injection of fluids. In general, the UIC regulations apply in three areas. Solution mining (e.g., for sulfur and uranium) falls under Class III and is subjected, through permits to construction, operating, monitoring and abandonment requirements. Sand backfilling operations and experimental technologies (e.g., borehole mining for phosphate) are categorized as Class V wells. Primacy states, or EPA Regions in cases where EPA administers the state program, are required to prepare an inventory and assessment of Class V practices. The results of these assessments are to be reported to Congress by September of 1987. Also, based on the results of these assessments, EPA will propose and promulgate appropriate Federal regulations in the future. Any such regulations will of course, be coordinated with any regulations affecting injection at mining sites developed under Subtitle D of RCRA.

C. National Priorities List (Superfund)

Pursuant to CERCLE Section 105 and Executive Order 12316, EPA has promulgated the National Contingency Plan to respond to releases and threatened releases of hazardous substances, pollutants and contaminants. CERCLE specifies criteria to be used to prepare a list of national priorities among the known releases or threatened releases of hazardous substances, pollutants or contaminants known as the National Priorities List. Sites are placed on the NPL primarily on the basis of an evaluation using the Hazard Ranking System (HRS). This system focuses on the actual or potential release of hazardous substances to pathways that affect human health or the environment. The Hazard Ranking System is weighted toward public health impacts, and mining sites that are included on the NPL must have the potential to cause such impacts.

On June 10, 1986, EPA issued a final rule which states that in some cases the concentrations and amounts of pollutants and contaminants discharged by mining sites can and do pose a significant threat to public health and the environment. Therefore, under CERCLE, EPA can undertake long term cleanup actions at mining sites if they are included on the National Priorities List (NPL).

Most mining sites are sufficiently remote or have such other characteristics that these potential impacts fall below the criteria of the HRS. However, some sites rank high on the list and are scheduled for cleanup under CERCLE. It is important to note the Bunker Hill site in Idaho's Silver Valley is one of the largest and most significant Superfund sites in the Northwest.

II. EFFECTS OF EPA REGULATIONS ON NORTHWEST MINING OPERATIONS AND REGIONAL AND STATE APPROACHES

In the State of Alaska, where hundreds of gold placer mines are operating, the requirements of the Clean Water Act and EPA regulations are having a serious effect. Gold is recovered from stream bottom gravels through the use of sluices which use large amounts of water. Historically, muddy water from the sluice box has been discharged directly to the stream, sometimes without even running the discharge through a settling pond.

The Clean Water Act requires the miners to obtain wastewater discharge permits, and the permits must contain conditions to assure compliance with state water quality standards. The main problem in Alaska is that traditional mining practices, even using settling ponds, result in discharges that violate state water quality standards criteria, primarily the standard for turbidity.

EPA in cooperation with other Federal and State agencies, has been working with the mining industry for several years studying and demonstrating mining and treatment technologies which will comply with permit requirements.

This summer, EPA is working within the U.S. Bureau of Mines on a flocculant demonstration project to control suspended solids and turbidity. The flocculant study could minimize the need for miners to rely on the recycle of wastewater to meet water quality standards. The results of the study will be important to EPA's proposed effluent guidelines for the Alaska placer mining industry.

Additionally, EPA has provided technical assistance to the miners through a placer mining coordinator located in Fairbanks, Alaska. The coordinator operates a one man office for purposes of explaining the requirements of the NPDES discharge permits and other EPA regulations. The coordinator spends a great deal of time in the field working with the miners to improve the quality of their discharges. It is expected that EPA will continue this effort for the next few years.

The cumulative results of our efforts with the placer miners is that we are beginning to see increased responsiveness by the majority of the placer miners. More of the miners are complying with reporting requirements and other permit conditions. Many are constructing more effective treatment systems.

Another EPA initiative which is currently underway in Idaho is Agency-conducted bimonitoring of mining effluents to determine at what dilution factors discharges are safe for organisms in receiving waters. Significant water quality improvements have been made in recent years to the South Fork of the Coeur d'Alene River as a result of limitations on mining discharges. It has even been reported that fish have moved through the area on occasion. However, EPA studies conducted in 1982 and 1984 found that heavy metal concentrations in the South Fork of the Coeur d'Alene River are still far too high to protect cold water biota.

Recent data collected from the lower river system and Lake Coeur d'Alene indicate that significant concentrations of heavy metals are still being found in waterfowl and fish tissues. EPA is currently conducting an ambient monitoring program to evaluate the chronic and acute effects on certain fish from effluent discharged from mining and milling operations in the area. Field operations associated with this project will be concluded in September. If our findings show substantial toxic impacts on test species, NPDES permits in the State of Idaho may be modified or reissued to include biomonitoring requirements. We will soon hold a biomonitoring workshop for the State of Idaho which we expect will be attended by representatives from many of the other western States as well. This is part of EPA's efforts to facilitate technology transfer from the Federal level to the States, and among States.

Under the hazardous emissions provisions of the Clean Air Act, EPA was required to determine whether air emission limits for radioactivity applicable to the elemental phosphorus plants of Southeast Idaho are adequate to protect human health. The Agency decided that if such a study were conducted, it should be a comprehensive look at radiation exposure of all sources, including radon and other natural sources in the area. This position has been strongly supported by the Idaho mining industries and interested environmental groups. The study commenced this summer, and it has been closely coordinated with local government authorities as well as industry and public interest group representatives.

I will also take this opportunity to mention two site-specific cases which illustrate how complex the issues are for even individual mines.

The first such case is the Quartz Hill molybdenum mine proposed by US Borax & Chemical Corporation to be located in the Misty Fjords National Monument in southeast Alaska. EPA is evaluating the feasible disposal options for mill tailings which will be generated at a rate of 80,000 tons (dry weight) per day, for a period of 55 years. The national effluent guidelines permit no discharge to U.S. waters. However, disposal on land of this volume of mill tailings would eventually result in two earth filled tailings dams, one over 1,000′ high and a mile long, the other would be smaller but still higher than Hoover Dam.

For this reason, EPA specifically exempted the Quartz Hill project from the effluent guidelines at the time of promulgation until the environmental review process is completed. Even with this temporary exemption, the unprecedented volume of tailings to be disposed from this mine operation present EPA, the Corps of Engineers and the U.S. Forest Service, on whose land the mine would operate, with extremely limited alternatives to evaluate during the EIS process.

Another complex regulatory case is the Sunbeam Mining Company's proposal to locate gold mining and processing facilities in the Yankee Fork Mining District of central Idaho. The facilities would discharge spent ore solids from cyanidation processing to Pinyon Basin—a unique high quality wetland, for which there is no physical way to compensate for its loss.

Under a recent memorandum of agreement signed by EPA and the Corps of Engineers, an NPDES permit is now required for that discharge. This change presents the Agency with a number of legal, policy, and administrative questions, not the least of which are: can a solid waste discharge which virtually eliminates the wetland which comprises its receiving waters be said to comply with State water quality standards; and should a discharge which EPA would recommend for denial under section 404 of the Clean Water Act be permittable under section 402? Region 10 is seeking the answers to theses and other questions while continuing to urge the company to evaluate alternative disposal options.

In conclusion, EPA has gone to great lengths to perform its environmental mission, and meet its legislative mandates without disrupting the mining industry. We are aware of the external economic pressures on the industry in general and we are listening to the various industry segments at both the regional and national level. Overall the industry's participation in the Agency's decisionmaking process has been most helpful. By acknowledging EPA's legislative mandates and administrative constraints, industry can improve the opportunities for meaningful dialogue and positive cooperative efforts.

I appreciate this opportunity to provide the Subcommittee with this statement. I will be pleased to answer any questions you may have.

Senator **Warner**. If I could ask, Mr. McKee, does your agency intend to regulate mine waste at the Federal level or work with the States in letting them do the regulating with the Federal role being one of oversight?

Mr. **McKee**. The primary intent under subtitle D would be to work with the states wherever they develop a program for controlling those wastes, and our intent would be to establish regulations which they could then use in conjunction with their own state regulations to run the program. There probably is some need for consistency, since mining is not particularly unique to a state. There will be need for some guideline regulations. But the primary emphasis would be to have the state implement those programs under that section.

The **Chairman**. I want to thank you both for your testimony, and I think maybe there is a real message here that we all ought to hear and reflect upon for a moment, because I think most people in the room would perceive that here we have two federal agencies, one that's fer 'em and one that's agin 'em.

I don't know that, Mr. McKee, if you would like that characterization, but obviously that's the way most people regard it. That troubles me, because I don't think you want that image, and certainly we don't want you to have that image. The National Environmental Policy Act requires among other things, that economic considerations be included in the evaluation process. I for one believe that that has not been appropriately balanced with many of the administrative actions by EPA, because it seems to meet that EPA has taken the role of being the adversary against other development activities. They have deliberately chosen the role not of a balanced judgment but of a protagonist on one side of an issue. Now I know you don't like that characterization, I know everybody in EPA would say, oh no, not us. But I would tell you that's the way you are viewed. And I think if you are going to change that public view, you are going to have to work harder at convincing people that the view that you present is a balanced view and not that of a protagonist.

One thing that comes to mind, and I hope you will pick up Mr. Horton's statement and read it, look on Page 5, for instance, when he is talking about backfill operations.

I know you have two offices, more than two subdivisions of EPA. But when it looks at the Clean Water Act requirements for protection of ground waters, they've got one group of people working in one area saying they can't do the backfill. Backfill is an important part of a modern mining operation. And I think the EPA will eventually sort that out. But in the short run you've got one group of federal agencies saying, hey, this is a good idea, let's go do it, and another federal agency that says, hey, that's a lousy idea, let's stop it. And somewhere you fellows have to work that cross-link so that you don't perpetuate this notion somehow that indeed EPA is against what other people are trying to do.

I am not going to take a lot of time here this morning, because I want to hear other witnesses, hear all the witnesses who are going to bring new information to us. And I don't make that statement in a purely antagonistic way. I just think that there's an imbalance in the administration that needs to be balanced better. And I do want you to—I am serious about picking up Mr. Horton's statement and reading it, at least that portion dealing with backfill.

Mr. Horton, on page 4 of your statement you make a comment which certainly is welcomed in this area. You point to the importance of the Bureau of Mines Research Center. I can't avoid the opportunity to say, gosh, if you really believe that, quit trying to close it.

Mr. HORTON. I quite trying to close it two years ago, Senator, and there are no further efforts or plans in that direction.

The CHAIRMAN. All the people up here ought to stop worrying about it?

Mr. HORTON. I wish they would.

The CHAIRMAN. I asked that question, because I knew that that's what he would say, and I wanted him to say it on the record so all you folks can hear it. And we are going to hold you to it.

Mr. HORTON. No, there are no plans at present, no considerations, no need to—

The CHAIRMAN. Thank you.

Senator WARNER. What you are saying is, there is no need for Mr. McClure to put on an appropriations bill that little sentence, "No funds under this Act should be used for the closing;" is that correct? Believe me, here is one man that can do it.

Mr. HORTON. The concerns have shifted to other things.

Senator McClure, I would like to note your comments regarding the EPA. Within the Bureau of Mines about six months ago we formally established an environmental working group at the Director's level, and we are now working closely in a day-to-day basis with EPA on regulations concerning mine wastes and other issues. We have a formal working agreement with their Cincinnati office on environmental matters regarding metals. While I might take some credit for the Bureau of Mines, I think the major portion of the credit belongs to EPA for providing establishment of the two-way dialogue that's now going on. And it's a dialogue perhaps long overdue but well accepted by EPA, and of course we are enthused with it, too.

The CHAIRMAN. I appreciate that comment, and certainly I encourage that kind of cross-dialogue.

Mr. McKee, on one point of your statement you were talking about the Sunbeam Mine?

Mr. McKEE. Yes.

The CHAIRMAN. You made reference to the impact upon wetlands. Certainly the nation has a commitment to the protection of wetlands. That's expressed in statute. And you have directives in statutes with respect to consideration of impact upon wetlands. But let me ask you this question. Does an impact, negative impact on wetlands mean an automatic raising of red flags in your mind or in the agency's mind that if wetlands are impacted that that project is automatically suspect and put on hold?

Mr. McKEE. Senator McClure, no, that's not the case. There are several classifications of wetlands as you probably are aware and there are certain ones which are considered to be unique. And under those circumstances the definition of that particular class implies that there is no way to physically compensate for those kinds of losses, and so we go to great extreme to try to protect those kinds. Other kinds have less protection. Also, we have to recognize sometimes there are other alternatives other than placing material in a particular wetland that is there, and we have encouraged the company; we have been working with them for a couple years, encouraging them to look at other options for places, to place material after they are through with their process there. They are not now sure there are any alternatives, but they are looking at those other alternatives, and we hope they will be able to find one that would not totally obliterate and put a 60 foot pile of material on top of the only wetland in the area.

The CHAIRMAN. Let me ask you this question. If they can't find an alternative, and I recognize you are still reviewing it, and perhaps it's not fair for me to ask the question about something under current review, but if they can't find an alternative and can't find a way to mitigate, does that mean an automatic denial?

Mr. MCKEE. It doesn't mean it's automatic.

The CHAIRMAN. But nearly so?

Mr. MCKEE. But nearly so. I have to be honest, that's been the way in which that law has been administered in the past, and we recognize that we are making a change here; we are now regulating the disposal of spent ore under Section 402 of the Act as opposed to Section 404, which is the regular direct field portion. So, we have never done this before in the Northwest or in other parts of the country. This is where we are just in the process of making some changes here. And I realize it is a regulatory dilemma for us.

The CHAIRMAN. I am sure it is, and Congress hasn't always been clear. I think Congress ought to take part of the blame for the dilemmas in which you are placed.

But do you read the statute as saying that the economic considerations are overridden by the wetland considerations in a situation like that nearly automatically? That's the way I heard what you said.

Mr. MCKEE. Well, there is a lot of analysis that has to precede any kind of decision. The first analysis of the kind of wetland that it is and the application of the law. And I can't say that it's nearly automatic necessarily, but at the point where we looked at it for two years and we studied the problems with the knowledge we have at this point in time, it tends to look that way looking at just the statute and the regulations.

The CHAIRMAN. The reason I asked that question is, it seems to me if that is the application of the law or your understanding of this necessary application, then we have said that almost invariably the protection of a unique wetland is the most important single body we can have as a nation. I question that. But maybe that Congress needs to act on that. But I would urge you to understand that NEPA does require an economic balancing. We are a nation that has critical mineral requirements.

We are a nation in which I very much fear what is happening to the basic economy of this country. I don't share the euphoria that many have in our country about the robust state of our economy. I think if you look, we do have two economies in this country, one services and information, and that's doing extremely well. And you look at the basic production industries, agriculture, timber and mining being three but not the only three, you see the same look in the rust belt in this country, you see the same thing. The basic resource industries and basic production in the country are in terrible shape.

If you want to look at the morning paper and see the last economic performance indicators, they show an almost stagnant condition with almost no growth in the economy recently, and that would tell me that we have very, very rough economic times ahead of us. And that has to be a consideration, too, because I will guarantee you that if we go into a depression, there will be a lot more people worried about food, clothing and shelter than about preservation of the environment. A part of the environment is a person's ability to feed his family. And if they run out of the ability to feed their family, they are going to state some unquotable things about the national policy and priorities. And I am concerned about it, because I think a more moderate approach to some of those problems may deflect the kind of conditions that will lead to worse results. And I am really sincere about that.

I know Steve will get very eloquent if we ever get into that question of how do we protect the Salmon River against siltation when we've got a flooding problem in the City of Salmon; and we've got the idiocy of saying that it's something man can't take out of the river, so let the city flood. You know, that's just ridiculous. And yet, that's where we get from the extreme applications of environmental concerns. There is a wetland involved there, too, by the way. It was created by man, but man can't uncreate it. Those kinds of things disturb me.

Mr. McKee. Senator, I understand your concern on that. I assure you we have nothing to do with the Salmon River situation. I understand your concern, but I hope you appreciate our position working with the Administration is to implement the laws as fairly as we possibly can.

The Chairman. That's all I ask.

Mr. McKee. And that's what we have been trying to do.

The Chairman. I understand that, that it's fair with a bias. I ask you to change that bias just a little. Everyone has a point of view, and it changes how they look at things. And what is fair in the eyes of one is unfair in the eyes of another. What is balanced in the eyes of one is terribly imbalanced in the eyes of another. You do have some administrative discretion.

I don't want to belabor that. I shouldn't leave it on just that point either, because back at the time when it was a question of whether the Bunker Hill smelter was going to close or remain open, I appreciated the attitude that we had from several federal agencies that made it possible for us to get regulatory assurances that could be given to that limited partnership that was seeking to reopen the smelter, and that part of the package of accommodations and agreements that you are responsible for came down affirmatively, and we appreciate it.

The smelter didn't close at that time because of actions taken by EPA. The attitude of the Steelworkers union was much more persuasive in the failure at the attempt to keep this smelter open. I think that's all on the record, and I don't want to belabor it, but I do want to say you, EPA, and OSHA were cooperative and helpful. I think the people of this area should know it. We had some problems at later times, but at least at that point it was good, and we appreciate it.

Mr. McKEE. Can I respond to one of your comments a moment ago concerning perhaps the Hack Kotter comment on the backfilling of the mine and so forth? I assure you that that problem is being addressed by our group, and we will come to a conclusion that will be consistent between two different ways of looking at that particular problem right now, both under the Clean Water Act and the regular law, and those will be consistent when we are completed. At this point in time there is no definite decision on it. And that part of the regulatory process we are going to look at in the next two years.

The CHAIRMAN. Well, I suppose it's possible that water that's affected by the redeposits of lead five thousand feet underground might find their way into the drinking water in Spokane. I can't prove that it won't. But it sure does stretch my imagination.

Now, secondly, I think it's important to make the decision in a timely way. It doesn't make much sense to make a decision after the mine is closed or after they have gone broke. That doesn't help them much. And if I talk to the mining industry, and I have at great length, most of them are telling me they could survive economic conditions if they could survive the federal government.

Senator WARNER. Many times have I heard that on the floor of the Senate.

Senator SYMMS. Thank you, Mr. Chairman. I will be very brief, because I do note you have a long witness list ahead. I will bypass, and I share the encouragement that Senator McClure gave to you. And I also would share in my compliments to you that my ability to be able to communicate with your shop in Idaho has been, I think, a compliment to you. We haven't always agreed eye to eye on things, but I think in general if we could get this kind of an attitude, we could do better.

I would just like to say one thing specifically, and then I don't necessarily have a question. You may want to comment on that. One question I want to ask Bob Horton, and that is, I would just like to encourage you to minimize what's going on out here testing the fish in Lake Coeur d'Alene. Not that I'm not concerned about it, but I think we need to be careful to not try to fix a hundred years of mining over what's happening now. And I personally believe that the situation is improving not degrading. And I hope that that kind of an interest can be made in any public statements the EPA would have with reference to that, because this is a beautiful lake, and there is a hundred year record of mining up there, modern technology has certainly changed things, and I hope that we don't get carried away and have some report come out that some way would cast some negative light on what is a very beautiful, clean lake. And there may be some problems at the other end of the entrance to Coeur d'Alene River, but I think most of those are something that happened 50 years ago, and we shouldn't try to correct it all in one or two years. That's just an encouragement I give you.

Mr. McKEE. I just might mention that, there have been a number of forces wishing we would expand the size of the Superfund area at Bunker Hill to include all of the Lake Coeur d'Alene and everything else and the drainage basin. That is strongly opposed by our agency. We feel that's totally unwarranted, and it will not be done if we have anything to say about the decision on it. I think you can be assured of that, the study of Lake Coeur d'Alene right now that we are doing is primarily to determine what kind of problems are going to be associated with people who are eating the fish regardless of whether those minerals and heavy metals got out there a hundred years ago or two hundred years ago. It's primarily geared to protecting the people's health who are eating the fish right now. And so that's what our emphasis will be on.

Senator SYMMS. Thank you. And I am encouraged to hear that.

Mr. Horton, particularly when the Bureau of Mines used to have control of mine safety, they had a cooperative safety program instead of the punitive safety program the way the Department of Labor now runs. But in those days, and I think unwisely, the Congress changed and transferred that authority to the Department of Labor, and it was done over my objection on the floor of the House when I was representing the First District and I know over Senator McClure's objection in the Senate. But we simply didn't have the votes at the time that this happened to stop it from happening. Now we have a punitive and a much labor safety program in the mines.

It's much less effective in my opinion than the one the Bureau used to run. But through this process it appears to me that the Bureau is no longer viewed by the industry as the place to go to get information and is kind of a mentor so to speak of mining companies if they want to get expertise, the Bureau doesn't quite have that image that it once had. And I just want to know if you have any—and I've always said I feel, you know, when you look at government, you've got the Department of State Secretary always advocating the interest of some foreign country, you've got the Agricultural Department advocating the interest of farmers and the Department of Labor advocating the interest of labor and Commerce advocating the interst of commerce. And I feel like sometimes the Bureau doesn't make a strong enough advocacy position in terms of the wilderness question and other areas of the strategic and critical importance of the mining industry to the overall security. And I wonder, do you have any plan to encourage and to restore the Bureau to a position where it had say 30 years ago in the country of the advocate for the mining industry within the government and be a little more aggressive about it?

Mr. HORTON. I would like to make a comment on the difference in structure that perhaps has not occurred to you.

The activities of the Bureau of Mines in those areas have been of concern, but I would note that the Departments of State, Commerce and Agriculture all have cabinet-level Secretaries. The Bureau is far from cabinet level. There are many review agencies and review authorities that look at the Bureau's proposals and suggestions before they are voiced. I am not necessarily criticizing that, but I would draw your attention to the people within the Bureau. The Director of the Bureau of Mines is not nearly as free as the Secretary of State, Secretary of Commerce and Secretary of Agriculture to speak in an advocacy position.

I must consider the views of the Secretary of the Interior, the Assistant Secretary to whom I report and the Office of Management and Budget——

The CHAIRMAN. You were doing all right until you got down to that last one.

Mr. HORTON. Yes. Now we are back to closing the Spokane Center.

But I am sure you are aware of my recent comments on the gold situation. Where I do find an opportunity, I do speak out. But there is less opportunity for me than otherwise.

The view that you have, the Bureau not being a source of information, is one that concerns me because there are mining companies that feel the same way. I don't think you'll find that belief widespread in the coal industry, nor perhaps in the Coeur d'Alenes because of the large amount of work we do directed at the Coeur d'Alenes. But people with whom we are not directly working tend to forget what the Bureau has available and what is there. To partly compensate for that, we now have an informal agreement—not an informal agreement—we are formally working informally with a committee of the American Mining Congress to solicit both their interest in the Bureau and presentation by them of their problems and concerns and what research projects they might have.

We recently had a meeting in Pittsburgh with 15 mining executives along that line, and we will do that elsewhere. I do share that concern, because there is a lot of sizable information.

Senator SYMMS. Well, thank you very much. We are running behind schedule here, so we can discuss this more further.

But my only encouragement to you is, grab some hide and hair from some of those government people back there and let them know we need their attention to this, because it is of critical importance to the nation that we don't lose this. And I think the Bureau needs to be speaking up in a loud way and rattle some cages, and you will have a lot of support from a lot of the westerners if you do that, and you are not going to get in trouble with respect to your position by making some noise in the inner circles of the government and let them know we need the mining industry, and let the mining industry know that the Bureau can help and stick up for them.

Mr. CRAIG. Thank you very much, Mr. Chairman.

Both to Director Horton and Mr. McKee, let me thank you for being here and testify as openly as you have.

I think both of my senators have covered the field of questioning and concerns very well, and I would only like to associate myself with their remarks. And I would say, Director Horton, that I appreciate the problem you have with ONB. And I had no qualms a year ago when you came before my committee with your budget recommendations, we said we don't like them, we are going to add money to it. And the reason we did that is because we would anticipate that the Bureau of Mines would be an advocacy group for the mining industry of this country; not that this industry wants subsidy, not that you provide them with it. That is certainly far from the truth. But certainly within the bureaucracies of our federal government we do need advocacies for this industry, and that is a role that you can play, that you have played, I wish you would play it more aggressively. And the message must be told. And there must be assistance of the technical assistance that you can offer and have. I would only recommend that you push very aggressively in that manner. You come to us again with the kind of budget recommendations you have in the past, and I know they are not yours, they are that which has been pared down by ONB. Expect once again for us to deny you and give you more and expect you to use it properly on behalf of the industry.

Mr. HORTON. Thank you.

Senator WARNER. Thank you very much, gentlemen. You made a very substantial contribution to this hearing. We hope your journey back home will be safe.

Now the next panel will be W.A. Griffith, Chairman, Hecla Mining Company, Dennis Wheeler, President, Coeur d'Alene Mines Corporation, Robert J. Kupsch, Vice-President, Mining, ASARCO, Inc., and Kenneth J. Barr, President, Cyprus Minerals Company.

STATEMENT OF KENNETH J. BARR, PRESIDENT, CYPRUS MINERALS CO.

Mr. BARR. Good day, I am Kenneth J. Barr, President of Cyprus Minerals Company. It is a pleasure to appear before the Subcommittee today to discuss the state of the mining industry in the Northwestern United States.

I should like to note, Mr. Chairman, that I believe we have conducting this hearing, three of the strongest supporters of the mining industry that the industry has in Congress.

Chairman Warner has brought a broad perspective to bear on the crisis in the minerals industry. As a former Secretary of the Navy, and a present member of the Armed Services Committee and the Energy and Natural Resources Committee he understands more fully than most this nation's need for a secure, economical source of minerals.

Chairman McClure has brought much needed focus to the industry from his position as Chairman of the Energy and Natural Resources Committee and his tireless efforts have been felt in every policy area, from taxes to the environment. Our Thompson Creek mine was given a better chance to survive during a critical period because of his work with the mine's supplier of electrical power.

Senator Symms has distinguished himself in his work on the Finance Committee and the Environment and Public Works Committee. His work with EPA helped ensure that mining wastes will be dealth with under Subtitle D of the Resource Conservation and Recovery Act—the non hazardous waste subtitle. His work with the Finance Committee, on depletion, on depreciation and on exploration and development costs ensured that the bill sent to conference from the Senate had a strong minerals industry approach. I can honestly say that Steve Symm's work has meant mining jobs for Idaho.

I should also like to thank Senators McClure and Symms for guarding against irresponsible proposals to sell our national mineral stockpiles. Such actions would seriously injure the domestic mining industry by reducing commodity prices in order to achieve foreign policy goals.

Mr. Chairman, to mine in Virginia and Idaho, as Cyprus Minerals does, is to mine in two of our nation's states with the strongest possible advocates of this industry. Even with that strong advocacy, you need to know that the mining industry in the Northwest and, for that matter, the entire United States is in serious trouble.

Cyprus Minerals Company produces molybdenum in Idaho at our Thompson Creek Mine near Challis. Nationally, we are the second largest producer of moly, the fourth largest producer of copper, and the tenth largest coal company. Our coal operations are located in Virginia, Kentucky, Pennsylvania, Colorado and Utah. Cyprus also mines talc in Montana, calcium carbonate in Alabama, kaolin and barite in Georgia, and ball clay in South Carolina and Tennessee.

These minerals, along with many others, provide the basic materials for American industry and thus are the foundation of the wide range of products enjoyed by the American consumer. These minerals provide the power that runs our industrial machine—56% of our electricity is from coal fired boilers in utilities and another 15% is from uranium in nuclear power plants.

The industrial base provides for our economic well-being and our national security, and they are today being threatened by the serious decline of the American mining industry—a critical basic domestic industry. As a Japanese businessman was quoted in Business Week a short time ago, "The U.S. is abandoning its status as an industrial power."

Since 1980, metal mining employment has declined by 40 percent, nonmetallic mining employment has declined by 11 percent and coal mining employment has declined by 20 percent. Since 1981, imports of non-fuel minerals have increased to nearly $25 billion, while exports of non-fuel minerals have declined to $12 billion. Coal exports have fallen 30% since 1981.

Because of this decline, some think the American mining industry as well as other basic industries cannot compete in the world and can be "thrown away". Some say there is no need to worry about Federal policy since our basic industrial decline is only natural and is primarily due to our workers and management. Or the U.S. does not need mining or other basic industries anyway, we'll just exist on a service economy.

We strongly disagree.

Basic industry, including mining, is the foundation for the service industry. Does anyone really think our computer and processing industries or our financial services alone will provide the economic well being to which we've become accustomed. What will happen when all countries protect these areas of their economy just as they have their basic industries over the years? In financial services I note that Japan has the 4 largest banks in the world, and six of the top ten and is now buying part of one of our most respected investment banking companies. This growth in financial power was possible because Japan protected its basic industry, including agriculture, while considering the U.S. industry and markets—fair game.

But getting back to mining in the Northwest, American miners are typified by the men and women of Thompson Creek, here in

Idaho. They produce more moly with fewer people than we ever thought possible Our costs are now one half of those once projected. They are efficient, disciplined, well-trained, safety-oriented and motivated to compete in today's world economy.

The mining companies have also done their share. Thompson Creek is more efficient today than three years ago. It uses less power, pays less for its materials and supplies, yet produces more. Our cash costs are less than half of the costs projected when the project was approved in 1980, and 40 percent less than in 1983.

The productivity of our large electric shovels has increased from 10,000 to 14,000 cubic yards per shift. This is an increase of 40 percent, and 14,000 cubic yards per shovel shift is high above the industry average.

Our milling costs have been reduced by 50 percent. Both power demand charges and wear material charges have been reduced by one third.

Costly accidents have been reduced significantly through increased safety measures.

Cross training of employees has widened the variety of tasks that they can perform.

Overtime has been reduced by better scheduling.

Outside services for security, waste handling and janitorial service are more effective.

Improved metallurgical techniques, on-steam analyzers, product classification, 2 sag mills, 1 ball mill circuit and improved liners have contributed to mill performance.

Better tire usage, lower-cost blasting, improved fragmentation, better wear material, have reduced mine costs.

Truly, our site management and operating personnel have done a great job.

Of course, Cyprus workers and management are not the only ones who have made drastic reductions in costs to be competitive, but those who want to throw away our mining industry are unaware of what has been done to cut costs in just the last few years whether it be in copper, moly, coal or industrial minerals mines.

Local officials who enforce the federal, state and local regulations should not be named the culprits. Our experience here in Idaho was a positive one. The Interagency Task Group of Federal, state and local agencies was formed to coordinate regulatory activities concerning construction and the monitoring of our Thompson Creek mine. The Forest Service, Bureau of Land Management, the Idaho Departments of Fish and Game, Health and Welfare, Lands and Water Resources all participate to ensure that regulatory requirements are met while maintaining an open and constructive relationship that ensures efficient processing of permitting and environmental matters.

Where then should we turn to identify contributing factors to mining decline? I believe that arrayed against the American mining industry is a complex combination of U.S. policies already in effect or being considered which, when added to the stated and unstated goals of other countries to protect their industry and jobs and the policies of various international agencies, will assure the destruction of the domestic mining industry as well as other basic industries.

America became a great Nation because we tapped here enormous wealth and produced goods and then services demanded by the world's nations. We mined our natural resources, developed a transportation system and created the base for our manufacturing and service industries. And sometimes we even protected those infant industries to ensure their development because we knew they were the key to our success.

In the period after World War II we had such tremendous economic power that we did not have to look after our own self-interests. We developed attitudes and values that have led to bad policies and thinking that today we no longer can afford.

We are now jeopardizing all that we have built. Through our trade, tax and environmental policies we are attacking the natural resource base that made us a great Nation and produced the world's highest standard of living. I believe a nation must produce goods to produce wealth.

Foreign governments, like Chile, have domestic employment goals and foreign exchange requirements and thus the prices and production levels of their state industries for a product like copper or moly may be unrelated to world demand. Their industries are required to meet few of the stringent health, safety, and environmental regulations which are required of American producers. Further, international lending institutions have provided with American tax dollars subsidized loans to developing countries to expand production of some mineral's already in oversupply in the world market.

Our miners in the American West should not be required to pay the full price of American foreign policy toward Chile or other countries. If we wish to help them with their domestic employment problems and their foreign exchange goals, then let us provide direct aid, but with strings to ensure responsible trade policies. Let us not tell the people of Idaho or Arizona that they will bear the full brunt of our policy through massive unemployment.

We emphasized Chile in this discussion because earlier this year Cyprus had a real shock. If the shock had been deliverd by a competitor or by a foreign power, we would not have been surprised—but this one was delivered by the United States Government.

Under its Trade Laws, the United States has what is called a Generalized System of Preferences. Under this scheme certain products (moly oxide being one) enter this country duty free for certain designated beneficiary countries, and Chile is one of these countries. Normally a country will lose its GSP eligibility with respect to a product if U.S. imports from that country (1) account for 50 percent or more of the value of total U.S. imports of that product, or (2) the product exports exceed a certain dollar value. These are called competitive need limitations. They can be waived, however, where total U.S. imports of the product are "de minimis." Child was granted one of these "de minimis" waivers earlier this year as to moly oxide by the Administration. This action allowed tariff free moly oxide produced by Chile with none of our health, safety, and environmental standards to move onto our shores in increased amounts. To me, this summary action without adequate consideration of the status of the molybdenum industry illustrates perfectly our government's irresponsible attitude toward the mining industry—and I might add to other U.S. basic industries.

In an ideal world Cyprus would not favor import quotas or restrictive tariffs, but we need more than the rhetoric of free trade. In today's world I don't believe there is such a thing as free and fair trade. It's not fair to ignore the subsidies, both apparent and hidden, and the many other official and unofficial barriers of trade that all countries impose to protect their jobs and industries.

Let me mention a federal policy change under consideration which will devastate the mining industry—tax reform. The House passed tax bill would have increased taxes on this industry by 67 percent. It would have over the long term reduced mining and related employment by some 570,000 people and it would have reduced investment by 21 percent. The Senate bill was more thoughtful toward minerals but it still provided for a substantial tax increase. The effect on the minerals industry of the conference agreement is not clear, but hundreds of millions of dollars of increased taxes mean fewer jobs in mining.

The mining industry, its workers and companies, need depletion allowances. They provide the capital to search for more resources for miners to extract. We need reasonable depreciation schedules. We support the reduced rates of the tax proposals, but the minimum tax aspects of both the House and Senate bills seem designed to ensure that few mining companies will be left to pay the new lower rates.

As the rhetoric flows on tax reform, we need to keep our eye on what is important. Many of the provisions in the tax code that some attempt to dismantle are critical to keeping miners working. Without them, mines will close.

Tax reform is not about big business versus the middle class. We are fighting for depletion allowances and other provisions to keep our mines open and our miners working. It is not us against them. We are all in this together.

Another area of major impact on mining is our concern for the environment. Our experience working with environmental groups during construction of our Thompson Creek moly mine here in Idaho was excellent and their concerns were faced with a cooperative attitude that led to an Idaho Conservation League Award. We are proud of that. But proponents in the environmental movement must understand that we cannot lock away all of our resources and maintain our society as we now know it. We must consider the cost to the nation and the impact on jobs, utilities, basic industries, and mines before adopting broad new acid rain legislation as is now being proposed.

In summary, our policies must seek a balance.

We cannot become the repository of all the world's subsidized or protected production.

We cannot provide tax relief to all individuals without endangering the very jobs in the businesses where they work.

We cannot provide the ideal environment for everyone if it means further reduciton in our ability to compete.

We are deeply appreciative of the opportunity to have a thoughtful discussion today guided by Senators who understand these issues. Our nation has unfortunately embarked upon a course, through the combination of policies, that will destroy a substantial portion of our domestic mining industry.

With your leadership and guidance we may be able to begin the long road back.

It is our belief at Cyprus that nothing less than our security and economic well-being are at stake.

Senator WARNER. Thank you, Mr. Barr. Understanding that you have to depart. I will defer to my colleagues if they have any questions.

The CHAIRMAN. In view of Mr. Barr's schedule, I have no questions. I thank you. I can't tell you how much I appreciate the content of that statement and your willingness to come here.

I flew from McCall to Idaho Falls the other day, and I went directly over Thompson Creek, and I will report your people were busy down there.

Mr. BARR. I have a hell of a bunch of people down there.

Senator SYMMS. Thank you very much for that statement.

Senator WARNER. I will ask one question out of curiosity.

I had a good deal to do with some ocean exploration when I was in the Department of the Navy. And I don't know if you remember that Glomar and that bit—

Mr. BARR. Yes. That worked for us when we were part of AMOCO.

Senator WARNER. There was so much manganese on the ocean floor, it was there for anyone to pick up, but of course it was a few feet down. But it was there. And my recollection of the quality of the ore was pretty good. Now, where are we in ocean mining? And I ask it only in terms, when is ocean mining going to jeopardize, for example, the existing mines we have here today?

Mr. BARR. We are not worried, Senator. At 18,000 feet of water, and we are only trying to establish our price level for moly at $3.25 a pound, we are not worring about moly from the deep ocean. There is some cobalt in there, and also some copper, but those, too, are not bringing the prices—or do not have the prices and are not foreseen that would attract the kind of investment that would be required. In fact, our company has lease No. 1 of the Federal ocean mining law along with Lockheed.

Senator WARNER. Well, now we will hear from Mr. Griffith, Chairman of Hecla Mining Company.

STATEMENT OF WILLIAM A. GRIFFITH, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, HECLA MINING CO.

Mr. GRIFFITH. Mr. Chairman, welcome to North Idaho, and thank you for this opportunity to present testimony to your committee.

I am William A. Griffith, Chairman and Chief Executive Officer of Hecla Mining Company headquartered in Coeur d'Alene, Idaho. Hecla is one of the two largest domestic producers of newly mined silver, and a major supplier of gold, lead, premium ball clay and scoria, with operations in eight states.

I am also a director of the American Mining Congress and Chairman of its Silver Committee. I have served as President of the Idaho Mining Association and as Chairman of the Silver Institute, a worldwide association of silver miners, refiners & fabricators. I have also served on the National Strategic Materials & Minerals Program Advisory Committee (the so-called Mott Committee). The exposure provided by these activities has given me a reasonably broad perspective and understanding of the problems of the domestic mining industry, the impact of foreign trade on the industry and particularly of the impact on silver mining, which is a major segment of the industry in Idaho.

Metals, such as silver, are worldwide commodities traded on a worldwide basis. There are only two metal market places of significance in the world, the London Metals Exchange and the huge New York Commodities Exchange. The price for our metal, silver, is set for the world on a daily basis in these two markets and there is really nothing we can do to affect that price. Silver is silver, whether it is produced in Wallace, Idaho, or at Casapalca in Peru. Therefore, U.S. mining companies are in direct competition on a price basis with producers in Mexico, Peru and Chile. A Coeur d'Alene district silver miner is in direct one-on-one competition with the Peruvian silver miner. The one who does his job most efficiently will survive.

The domestic miner has not fared very well against the foreign competition in recent years. In Idaho, we have seen mining industry income drop from an estimated $122 million in 1981 to approximately $20 million last year. While it is true that 1981 was a good year for silver mining and 1985 was not, these figures are reflective of the industry's problems in this state.

The total effect of all non-fuel mining and mineral processing on Idaho incomes declined from $708 million in 1980 to $510 million in 1984, the most recent year for which figures are available. This decline is even more substantial when only the metals mining and refining, segment is considered. In metals mining and refining, the total effect on Idaho incomes dropped from $483 million in 1980 to $212 million in 1984, a 56 percent decline in only a 4-year period.

Idaho minerals have increasingly been sent out of state or out of the country for processing. The fraction of Idaho mine production that is processed in the state has declined from 54% in 1980 to 30% in 1984. The closure of the Bunker Hill lead and zinc complex in 1981 and closure of the ASARCO lead smelter in El Paso, Texas, has left Hecla and other Idaho lead producers with only one smelter in the U.S. capable of treating their concentrates, and no alternative but to ship zinc concentrates abroad for treatment.

Presently Hecla is shipping the Lucky Friday concentrates to East Helena, and their zinc concetrates to Cominco's smelter at Trail, B.C. Should the East Helena smelter close, Hecla would have to export the lead concentrates to Canada, Europe or Japan.

Employment in the mining industry peaked at about 8,000 jobs in 1981 and is down to a mere 4,100 today, an elimination of about half the mining jobs in the state during the past five years.

There are several reasons for this steep decline, but a major factor has been the continued or increased production of metals by lesser developed countries (LDC's) in the face of inadequate demand, leading to prolonged depression of prices.

The United States mining industry is at a competitive disadvantage in these circumstances for four major reasons:

1. Many large high-grade ore deposits exist in Third World countries. In many cases these deposits are much richer than the deposits presently known and being mined in the United States. For example, the huge Chuquicamata Mine in Chile produces 125,000 tons of ore a day which averages about 2% copper. Similar copper mines in the United States typically mine copper ore which contains about .5% or less copper, only about ¼ as rich as the Chilean mine. Brazil has been likened to the United States in the 1800's with vast untapped and undiscovered ore reserves waiting to be developed.

2. Foreign labor is much cheaper. The cost of employing a Coeur d'Alene miner amounts to about $15 an hour including benefits paid by the company. Because of incentive programs it is not uncommon for a miner to make up to $25 an hour. In comparison, the cost to a company employing a Chilean miner amounts to about $1.50 per hour. So obviously, Third World countries enjoy a tremendous advantage in labor costs at the present time.

3. Governments of the developing countries commonly provide very strong support to their mining industries and, in most cases, play a partnership role in devloping and operating new mining projects. This is done to assist in developing the base industries for the benefit of the economies of their countries, to maintain employment, and to acquire U.S. dollars for various reasons, including payment of debt.

4. Developing countries don't have the Environmental Protection Agency, the Mine Safety and Health Administration or a host of other regulatory agencies to contend with. While these U.S. Agencies have the laudable charge of protecting workers and citizens, their rules and regulations significantly increase the cost of producing minerals above costs incurred in countries which do not require such safeguards for their people. Last year one of our mines was visited 21 different times by Mine Safety and Health Administration inspectors who spend a total of 81 days there. That averages out to one and one-half days per week of government inspection. The burden can be even more serious in attempting to obtain environmental permits for new mining projects. It took over 300 different permits to construct and begin operations at Homestake Mining Company's new McLaughlin mine in norther California. Permitting, environmental studies and environmental mitigations cost the company $35 to $40 million.

So, we are at a competitive disadvantage in the world today. We need to regain our competitive edge. We in the mining industry are working diligently to cut costs and improve productivity. For example, at our Lucky Friday mine in northern Idaho, productivity in tons per manshift has been increased by 40% since 1980, and direct cost per ounce to mine silver has actually been cut despite five years of inflation. These gains are due to capital improvements, improved management technology, substantial investment in research and development and improved performance by our work force. Labor unions are beginning to realize that we risk losing all mining jobs in this country, and wage concessions have been granted in some segments in the mining industry.

We in Hecla Mining Company support an open and fair international trading system, and it is my understanding that most of our peers in the industry agree with us. We believe in adhering to the principles of an open global economy, with free access to markets and resources; competitive and nondiscriminatory intenrational trade, investment and project financing; and the strengthening of private enterprise worldwide. We don't need government interference in world free trade, and we don't need protectionist measures like price supports, import tariffs, quotas or a subsidized floor price for silver. Because silver is traded on international markets, tariffs and quotas on silver from individual countries would be totally unenforceable. They simply would not work. Even if we were successful in somehow devising a successful tariff system for silver, the long-term effect of such action would be to price U.S. production out of the world market. An artificially supported domestic silver mining industry would have less incentive to continue taking steps toward regaining its competitiveness in the world market. U.S. manufacturing firms in the photographic, electrical and flatware industries would be put at a competitive disadvantage by having to pay more for silver than their competitors in the world, and some would no doubt be forced out of business. If our industry is to again become competitive in the world market, government price supports are not the answer.

However, there are ways that the federal government can and should help to provide a "level playing field" for our efforts to be competitive. I have prepared a "wish list" of action items consistent with this goal.

1. Carefully review all proposed regulatory requirements. Regulations add to costs and must be justifiable by the benefits to our citizens. Superfund, MSHA and wilderness legislation are examples of federal programs that were originally properly motivated, but have become self-perpetuating gorillas devouring industry dollars and preventing domestic competition with foreign production not so burdened.

2. Work honestly toward fiscal responsibility and a balanced budget. Our inability to control government spending has distorted foreign exchange rates so that foreign competition has an import advantage based on the high value accorded to the American dollar. Currency manipulation by certain foreign governments, including currency devaluation by Peru and Chile, have hurt domestic producers' ability to compete in the world market place. The United States is beginning to take a more agressive role in achieving exchange rates that better reflect true economic fundamentals, and this course of action should be continued.

3. Review government-backed foreign loan programs. The World Bank announced in late July a new series of loans that will pump $2 billion or more into Mexican industry, including mining, to stimulate growth of non-oil exports. Why should our government, through its affiliation with the World Bank, promote growth in foreign metals production when oversupplies already exist in the world and the U.S. mining industry is struggling to survive?

4. Carefully manage our environmental agencies so that funds are directed to clean up and to control real hazards rather than unrealistic and horribly expensive attempts to create a pristine environment. EPA recently took a step in the right direction by recognizing that regulation of large volume mining wastes as a hazard-

ous waste in not warranted. The agency determined to regulate such wastes as nonhazardous under Subtitle D of the Resource Conservation and Recovery Act. Close congressional oversight of this rulemaking is required, however, to ensure that responsibility for regulating mining wastes is now delegated to the States under Subtitle D as Congress intended.

5. Make any needed reductions in the amount of silver in the strategic stockpile via coinage so as to not upset normal market forces. Any proceeds should be used to acquire other stockpiled minerals, not for the general fund or budget balancing purposes. Resist efforts to dump U.S. treasury gold for political reasons. In this area, our industry owes a debt of gratitude to Idaho's congressional delegation. Senators Symms and McClure and Congressman Craig have worked diligently and won numerous victories in thwarting government efforts to dispose of stockpiled silver in an unwise manner. Also, just last Thursday a proposal to dump U.S. treasury gold on the world market to inflict economic harm on South Africa was defeated in the Senate through the intense efforts of Senators McClure and Symms. This proposal, had it been carried out, would have done extreme damage to many domestic mining companies, including Hecla.

6. Tax policies should be broadly based and they should recognize the unique character of mining extraction and the need for a depletion allowance. Tax policies should encourage development and application of new technology, including allowances for expensing research and development costs. Investment in new plants and facilities should be encouraged by depreciation schedules that truly reflect replacement costs.

Again, I want to commend Senators Symms and McClure for their recent work on Tax Reform Legislaiton which saved our ability to deduct exploration costs as expenses. Exploration is the key to survival of the U.S. mining industry, yet in this country our government seems bent on stopping exploration by locking up the public lands and proposing tax policies that would drastically curtail exploration.

This is not true in many other countries. For example, the Canadian government actively promotes new mining projects in that country by allowing very favorable tax treatment of minerals exploration expenses. Canadian tax law encourages search for new minerals deposits by allowing issuance of "flow-through shares" whereby Canadian investors can take tax deductions of up to 133% of dollars invested. Such efforts have been very successful in raising venture capital for minerals exploration in Canada. In fact, indications are that the number of willing investors vastly exceeds the number of good projects at this time.

Funds raised through the issuance of "flow-through shares" have financed the discovery and exploration of several major new properities including St. Andrew Gold Fields Limited's Casa Berardi Gold Property in Quebec, Mascot Gold Mines Limited's Nickle Plate Gold Property in British Columbia and Granges Exploration Limited's Trout Lake property in Manitoba. I would like to suggest that this same type of tax policy be considered in the United States.

7. Promote our industry in research and development. Bureau of Mines' operations should include adequate funding for bureau and joint bureau industry programs, with emphasis on new processes, lower cost mining techniques, and lower methods of meeting environmental requirements.

I must admit the above list of suggestions, is rather ambitious, but it is limited to action well within the realm of government's responsibility to business and the American public, most of whom work for business. It consists of measures designed only to provide our industry with a "level playing field." None of the above would interfere with world free trade, and none would cross over into the often tried but never successful arena of "protectionism."

In summary, the mining industry in the United States and the Northwest is not dead but it is in trouble. In solving our problems, we in the industry need to do a better job of managing both resources and people. I believe we can do that.

We do need government help—not in a protectionist sense—those measures don't work and are inevitably harmful in the long run. What we do need is government fiscal responsibility, recognition that the metals market is a world market, and a sensible approach to regulations which gives necessary protection to our people, but does not unnecessarily penalize the mining industry in competing in the worldwide market place.

Senator **WARNER**. That statement reflects a very objective and indepth understanding of your industry. It's the result of many years of hard work.

Now our next witness will be Mr. Kupsch, Vice-President of Mining, Asarco.

STATEMENT OF ROBERT J. KUPSCH, VICE PRESIDENT, ASARCO INC.

Mr. **KUPSCH**. Good morning, Mr. Chairman. My name is Robert J. Kupsch. I am Vice President (Mining) of Asarco Incorporated, located at 180 Maiden Lane, New York, New York. Asarco Incorporated is a miner, smelter and refiner of nonferrous metals and minerals, including copper, lead, zinc, silver and their byproducts. Here in the Northwest, Asarco has a 50% interest in the Coeur and 37.5% interest in the Galena silver mines in Idaho and a 75% interest in the Troy silver-copper mine in Troy, Montana. Asarco operates these three properties. In addition, Asarco owns and operates the East Helena lead smelter in Montana. Elsewhere in the United States, Asarco owns and operates copper mining and smelting operations in Arizona; a copper smelter and refinery in El Paso, Texas; lead mining and smelting and refining facilities in Missouri; a lead-zinc mine and byproduct plant in Colorado; and zinc mining operations in Tennessee.

At the outset, let me say we appreciate these hearings and the opportunity to provide our views on the problems facing the mining industry in the Northwest to the Committee. Let me also take this opportunity to express Asarco's appreciation for the unfailing support given to the mining industry by Senators McClure and Symms and Congressman Craig, as well as for the leadership that the Idaho delegation has consistently provided on mining-related issues in the Congress.

The mining industry of the Northwest, like the domestic industry generally throughout the U.S., is experiencing the worst times certainly since the Great Depression and possibly in this century. At the root of the problem is a prolonged period of depressed prices—prices which in real terms for the last four years have been at levels that are the lowest since the 1930's. The cause of depressed prices is principally over-capacity in the international marketplace. Much of the capacity for metal commodities outside of the United States is in the hands of government-owned producers, or at least producers that are subsidized or supported in some form by their governments to encourage continued production and full utilization of capacity in order to generate foreign exchange and to provide employment.

The effects of price deflation in metal commodities is well known. It is documented in terms of production curtailments, closures of mining and mineral processing facilities, and the effects upon local economies. These consequences and the impacts in human terms, in terms of lost jobs and the effects of economic disruption upon people's lives, I am sure will be described here by other witnesses.

The response to these conditions by the U.S. industry, and indeed by the mining industry worldwide has been an all-out campaign to lower costs in an effort to remain competitive. The cost-reduction programs are being undertaken with the realization that to survive, over the near term, U.S. mines must lower their costs.

Asarco, for example, has embarked on a company-wide program of restructuring, consolidation, and cost savings intended to get the company into the black under current market conditions. The first phase of this program achieved cost savings of $115 million during the 1981–1985 period. Asarco is presently engaged in Phase II of a cost-reduction program intended to achieve annual savings worth $75 million. At the same time, Asarco has just successfully completed a public offering of convertible, exchangeable preferred stock and common stock purchase warrants, with net proceeds to the company of approximately $81 million. This cash has been used to repay debt and to repurchase certain outstanding preferred shares, with the result being to improve our overall debt capacity and to provide financial flexibility to operate under current conditions.

This program has not been without pain, however. For example, we now have two-thirds the number of employees we had at the end of 1981. We have closed a copper smelter in Tacoma, Washington, two mines in Arizona, suspended operations at our zinc smelting and refining facilities at Corpus Christi, Texas, and we are shutting down a zinc oxide plant at Columbus, Ohio. The objective is to have in place remaining assets that are modern, low-cost, and competitive in the international marketplace. This trend of reducing costs, improving productivity, and consolidation is a pattern that has become fairly common in the U.S. mining industry.

Moreover, this more recent survival progam comes on the heels of massive investments made in our domestic facilities. Asarco, for example, made capital expenditures during the 1970–1983 period of more than $1.5 billion for capital improvements, new facilities, and spending for environmental programs mandated by our government. For the most part, the mining industry, unlike many other basic industries in America, cannot be accused of neglecting its facilities and of not spending the capital necessary to maintain competitive operations.

It is this area of costs and the impact of our government upon costs that I would like to emphasize today. The role of costs in mining and mineral processing are at the heart of our business. It is axiomatic, for example, that every added cost has an adverse effect on mineable, economic reserves. In addition, costs—which are determined by a number of factors such as ore grade, infrastructure, labor costs, smelting and refining costs, and the method of operations—are the ultimate arbiter of whether a property can continue to operate, providing profits for investors as well as generating funds for future capital programs. This is especially true in the current environment of depressed market prices.

The effect of a long list of government programs affecting our industry has been to impose layer-upon-layer of costs upon individual operations, often determining whether otherwise economic operations remain open or close. One often hears it said in both official circles and the media that industry threatens to close if onerous laws and regulations are enacted or implemented, and that these threats are often idle or never realized. The unfortunate fact is that we find ourselves at this point in history with a mining and mineral processing industry that has contracted dramatically from what it was in the early 1970s when the proliferation of government programs started, while the burden of new government requirements continues. The effect in recent years is evident in states such as Idaho, Montana, Arizona, and New Mexico which once had strong mining economies.

The effect has been to offset considerably the progress made by the industry itself in cost-reduction. The problem is that, despite statutes such as the Mining and Minerals Policy Act of 1970 that call for maintaining a healthy domestic mining and minerals industry, individual government programs are recommended and imposed without regard for the overall cost impact. Despite expressions of concern about minerals policy as a general matter, government actions have been undertaken for other primary public policy goals—in the area of environmental policy, public lands policies, taxation, and international trade. Most recently, we have even seen legislation proposed calling for the President to sell our nation's gold reserves as a means of driving down gold prices to impose economic sanctions against South Africa without regard for the impact on our own domestic gold industry. Fortunately, this proposal ultimately failed.

Let me also say here that policies that affect the smelting and refining stage of production also have an impact upon the cost of mining operations. Added smelter costs are either passed back to the miner, thus affecting mine production costs or are absorbed by the smelter itself, thus affecting the viability of smelting operations. The result has been closures of domestic smelters, with adverse ultimate consequences for the mining stage. Alternatively, mine production is then shipped to smelters outside the United

States, with the effect of the United States becoming akin to a developing country that exports raw materials and not value-added products. Refined metal comes back to the United States in either fabricated shapes or finished products such as automobiles or consumer products.

Let me turn now to some of the issues that are of specific concern to Asarco. I would like to outline briefly a handful of the policy areas that are of immediate concern.

TAX

Asarco has been supportive of the efforts in the Congress now culminating in the Conference on tax reform legislation. The goal of tax reform and simplification we believe to be good for the country and good for the economy. In light of the termination of the investment tax program in the proposed legislation, we believe that it would make excellent policy sense to permit distressed industries such as mining to achieve partial refundability of unutilized investment tax credits. Such treatment was afforded the steel industry in a transition rule that was included in the Senate bill. Asarco, for example, has some $60 million in unutilized investment tax credits at present—the result of major investments undertaken by the company combined with an insufficient earnings base to permit us to take advantage of these credits. With the prospects of continued low earnings, these earned credits will expire without the ability to utilize them. We appreciate the leadership that Senator Symms has offered on mining-related tax issues on the Senate Finance Committee, including his efforts to preserve the mineral percentage depletion allowance and to maintain the right to expense mineral exploration and development costs.

SUPERFUND

Although originally intended to deal with hazardous waste sites largely found in the chemical industry, the Superfund law has had a major cost impact upon the mining industry. As a general matter, EPA's methodology for naming sites to the National Priority List (NPL) has been biased against mining, with mine waste sites receiving priority attention based on the high volume of relatively non-toxic wastes generated by mining and mineral processing. At worst, the result is massive liabilities for clean-up costs for sites that will have a minimal impact upon public health or the environment. At a minimum, the effect has been major expenses associated with legal and study costs for individual sites that are named to the priority list.

Asarco has supported and worked for changes to the so-called Hazard Ranking System that were proposed in the Senate Superfund bill. Although the Senate provisions have been watered down substantially in conference, we are hopeful that the new legislation will require much-needed reforms in the way mining sites are named to the National Priority List.

Asarco has also been concerned about the competitive implications for our industry of the various funding mechanisms proposed for Superfund. We continue to support the idea of a broad-based tax such as that proposed in the Senate bill, but are terribly concerned about proposals being discussed in conference for a waste-end tax or a tax on our metal products such as lead which will place us at a disadvantage with foreign competition.

RCRA

The mining industry, as you know, has enjoyed an exemption from the hazardous waste requirements of RCRA as a result of the Bevill amendment enacted in the 1980 RCRA amendments. EPA has recently made a determination that mining wastes will be regulated under state and local programs—a determination that was made after considerable intervention from mining state members of Congress including members of the Idaho delegation. We are especially indebted to Congressman Craig for his active intervention in this and in other issues. However, we will work with EPA and will be watching closely the process of developing federal guidelines and standards for state programs for mining wastes. We are equally concerned about EPA's decision last fall to reinterpret the Bevill amendment exemption to exclude smelting and refining wastes without benefit of a study on these wastes required by Congress.

STOCKPILE

I would like to express appreciation to the Idaho members for their leadership on stockpile issues. Senator McClure in particular deserves thanks for this leadership on stockpile reform legislation generally and on winning legislation that would transfer stockpile silver for use in coinage. However, we are extremely concerned about a new proposal embodied in the Senate stockpile amendments that would dispose of large quantities of lead, zinc, and cadmium at a time when the market for these metals cannot tolerate additional excess supplies. We are equally concerned about an amendment that has been added to the House Treasury and Post Office Appropriations legislation that would require GSA to sell 5 million ounces of silver to a market that is already depressed.

ACID RAIN

Despite continued uncertainty over the science and over the causes and effects of acid rain, the Congress seems intent upon moving forward with onerous acid rain legislation. As presently proposed, both the Stafford bill in the Senate and the Waxman legislation in the House are likely to require additional rollbacks in sulfur emissions from nonferrous smelters, on top of major expenditures that have already been undertaken at nearly all domestic copper, lead, and zinc smelting facilities.

Moreover, the Administration has recently signed an agreement with the Canadian government on acid rain controls, which if implemented would require additional major expenditures by domestic smelting facilities. It is clear that the Canadian government views its contribution to a joint acid rain control program as an important component of industrial policy to provide government assistance to Canadian nonferrous smelters for modernization and pollution control. Our own contribution, in contrast, will be added costs, with consequent adverse effects upon international competitiveness. This comes at a time when there is increasing evidence about the existence of both federal and provincial subsidies for the nonferrous mining and smelting sectors in Canada. To compound the irony, this debate is taking place just as the U.S. government proposes to enter into negotiations with Canada for a free trade agreement between the two countries.

Mr. Chairman, my list is not intended to be all encompassing, but only to hit upon the highlights of those policy areas where we have an immediate concern. I am sure other companies would list other issues and possibly even other priorities.

We continue to be appreciative of the efforts of both this committee and of the Idaho congressional delegation as a whole. I hope that Asarco and others in the mining industry can continue to work with our friends in Congress for trying to preserve what is left of the domestic mining and mineral processing industry.

Thank you for the opportunity to provide these views.

Senator **Warner**. Thank you very much. The members of the Senate staff toured your Galena, mine and they report back a very efficient and well managed operation.

Mr. **Kupsch**. Yes, we appreciated them visiting our facility.

Senator **Warner**. Now we will hear from Mr. Wheeler.

STATEMENT OF DENNIS E. WHEELER, PRESIDENT, COEUR d'ALENE MINES CORP.

Mr. **Wheeler**. The United States consumes 120,000,000 million ounces of silver annually. We produce only 40,000,000 ounces annually, 40 percent of which is mined in the Coeur D'Arlene Mining District of Idaho, the largest silver producing region in the entire history of mankind. Although we are world leaders in precious metals mining technology and are cost competitive, the United States silver industry is being severly and in some cases fatally injured as a result of low prices.

I do not favor administration action to protect or preserve noncompetitive, inefficient business in the market place. However, the domestic silver mining industry is not such a business.

The United States must address the question whether we can afford to lose industries where we do have a technological edge and are cost competitive under normal circumstances. Following are my requests for action by the Federal Government.

(1) On August 6, 1986 the House of Representatives adopted an amendment by Representative Conte that authorized sale of 5,000,000 troy ounces of stockpiled silver by the General Services Administration. The proposal to sell silver at a time when we are experiencing the lowest silver prices in eight (8) years, battling excess supply from Mexico and Peru and at a time when employment in the Coeur D'Alene Mining District has declined from approximately 5,000 to 500 jobes. Such sales have always been handle in the past on an auction basis which served no purpose other than to further lower the price of silver. I would urge the administration to vote the Conte proposal contained in H.R. 5294 and instead reconsider and approve Senate bill 2645 authored by Senators James A. McClure and Steve Symms which would require that stockpile requirements be established by law and that management and

policy functions be transferred to the Defense Department. Senator Warner, I am aware of your longstanding concern for proper management of the U.S. stockpile and it's importance to our national defense.

(2) The present state of the mining industry cannot be blamed on a lack of technical improvements. For example, our precious metal industry is the world leader in innocative and low-cost technical process applications and improvements. Even though we have little or no control of world silver and gold prices, much of our precious metal industry is presently very cost competitive world-wide. The economic problems of this industry, other than metal prices, are closely tied to adverse State and Federal controls.

The Environmental Protection Agency and CERCLA or "Superfund' as it is more commonly known, is a punitive and ill-advised measure. Frankly, it was shocking to me that Congress would approve a superfund appropriation far in excess of that requested by the President at a time of staggering Federal deficits. The EPA should be redirected towards a research program aimed at improving pollution, industrial wastes, hazardous wastes, and mineral processing techniques for future not past operations which would be of assistance to the industry. Nobody other than high paid consultants gains from projects on historical mining sites that have stabilized over the years and pose no threat or at least no significant threat to human health.

(3) U.S. Bureau of Mines needs to be revitalized and more adequately funded. Efforts of the bureau should be redirected to research to investigate new precious metals technology including insitu leaching technology. The mining industry is now in an environment which seriously inhibits the industry's ability to fund projects to demonstrate new low cost production technologies. Financial and technical assistance by the Government through research is necessary at this time to develop and demonstrate the commercial viabililty of new technologies. Frankly, the bureau which has been our government arm for more than fifty (50) years has suffered such serious budget and personnel cut-backs that doubts exist within our industry as to how effective the bureau is or will be in the future. It would be a severe blow to an already ailing domestic industry if we lose the Bureau of Mines in Washington.

(4) Commerce Secretary Malcom Baldrige and U.S. Trade Representative Clayton Yeutter have recently offered their suggestions regarding an investigation of whether Mexico and Peru are engaged in inappropriate trade practices. Production from these two countries has risen approximately 30 and 37 percent. We appreciate thus far the cooperation extended us by the Department of Commerce and intend to proceed with regard to an investigation to determine whether countervailing duties should be placed on Mexican and Peruvian production and whether or not anti-dumping relief if in order.

(5) Consideration should be given to requiring Mexico and Peru to pledge silver a collateral for extensions of their debts owing the United States or to accept silver upon payment of such debt.

(6) The State Department should be encouraged to work with Mexico and Peru to voluntarily restrict silver sales to the United States.

Congress has recently removed the prohibition against the purchase of silver and gold coins in individual retirement accounts. In addition, the United States Government has recognized the desire of U.S. citizens to purchase precious metals coinage through the Statue of Liberty coin program co-sponsored by Senators McClure and Symms. These actions of Congress are commendable and represent a good start in helping to maintain and/or restore the vitality of the companies within the U.S. domestic precious metals mining industry.

Thank you Senator Warner for your interest in appearing here today. Thank you also to Senators James A. McClure and Steve Symms for your on-going interest and dedication to Idaho's mining industry. We appreciate your help.

Senator WARNER. Thank you very much, Mr. Wheeler.

We will now have questions of the panel.

I have a commitment elsewhere which will require my departure, but our good Chairman will continue the hearing.

The CHAIRMAN. If I can, and because there was an earlier indication we might break after this Panel, I think perhaps members of the next Panel are here and ready to testify, so we will just go ahead without that break.

I don't really have a very large number of questions, but I do want to express my appreciation, obviously appreciation for your testimony not just because it makes reference to things that we may have done to be of assistance but because the Congress of the United States needs to understand the plight of the industry and some of the potential things that might be done to help the industry. I think each of you in your own way and sometimes in the same way and sometimes in different ways outline things that can be done to assist further. I assure you we will take those recommendations seriously and try to implement as much of that as we can.

One question to you, Mr. Kupsch, and I would ask others of the Panel as well, the Coeur d'Alene and Galena mines has a phenomenon that's not common in many mining districts, and that's because of the depth of the mines and the ore bodies and also the density of the rock, you are plagued by that phenomenon that doesn't hit other places, rock bursts, and it is a serious problem, a matter of concern to every miner and miner's family in the District.

Are you getting the kind of cooperation that you want and need from the Bureau of Mines?

Mr. KUPSCH: Yes. I worked in the Coeur d'Alenes prior to going to New York, and it was back in 1966, '67, the Bureau of Mines became involved with the rock burst situation and started monitoring the Galena unit. Since that time they have been very cooperative with us. And we are looking toward an expansion of the System taking it into our Coeur operation. A rock burst is a very concerning item to us.

The CHAIRMAN. Any other comments of the members of the panel?

I have no further questions.

I might just note that we have the manager of the ASARCO operations here, Fred Owsley, who is perhaps—I should note that because we have had such a procession of ASARCO people that have been important in the American Mining Congress, our relationships with Mr. Barber and I think particularly with Simon Strauss who has also been active along with Bill Griffith in the Silver Institute and the papers that Simon did at one time on strategic minerals is still kind of a standard reference piece for those of us who want to somehow get people to pay attention to the seriousness of that threat. Your contributions to the national dialogue have been very great. I commend each of you for your interest, and we are going to maintain ours. Thank you.

Senator SYMMS. All three of you, thank you very much for some excellent statements.

And I note to Bill Griffith that he testified with a similar statement in Boise earlier this week before the Joint Economic Committee, and I appreciate your valuable time being tied up. And I apologize that we do tie up so much time, since I know the members of the business community have work to do. But I carefully read your statement coming up on the plane again this morning, it's excellent, and I hope we can do some of these things that are—your list of seven wishes I have to say is rather ambitious, but I think it's on target, and I compliment you for it because it's most thoughtful. But I think it is significant that in addition to all of the days tied up by shift bosses and mine foremen trying to work with various government regulatory agencies whether it deals with environmental questions or safety questions, the mining executives are tied up also, and government has become a bigger and bigger part of mining. And it would be my hope we would reduce at least that part and get you back to where you only have to work one day a week on that kind of thing, Bill, indeed an improvement over two. And I appreciate all of your statements. I appreciate the kind words you said about me. I just hope that I can—I would only say though your statements are reflective of the fact that those of us in the Congress need to recognize there is much, much more work to do to help make the environment profitable and fair again for the American mining industry per se and Idaho in specific. And so I thank you for helping us be better informed. My compliments to all of you for the operations you run here.

I might say, Mr. Kupsch, I think Fred Owsley is revered in this District as one of the real fine mining operators in the United States, and we appreciate the fact ASARCO has him here in Idaho. And it's interesting he also operate the property for the Coeur d'Alene Mines. And Hecla also has a reputation of being a fine mine operating company, and they are still mining in some parts of the country, although unfortunately their Lucky Friday is presently waiting for better times in the silver price.

Mr. KUPSCH. Senator, thank you.

Mr. GRIFFITH. I would say the small amount of time that's spent in these hearings is small compensation for the many, many hours all three of you in the Idaho delegation and Senator Warner have spent on our behalf in Washington, and we really appreciate what you've done.

Senator SYMMS. Thank you very much.

Mr. CRAIG. Senator Warner, I understand you are going to have to go, and I certainly want to thank you for coming out.

I want to make only one statement to reflect what these three gentleman have said as leaders in the mining industry in this country.

Oftentimes business and industry feels in this country, Mr. Chairman, because they simply have failed to keep pace with modern technology and, therefore, they become progressively less competitive in an environment that continually strives toward efficiency. That is simply not true of the Idaho mining industry and our nation's mining industry.

If you went to the Coeur d'Alenes today, you would see the most efficient, new, modern types of mining operations compared with no other in the world. New investments, hundreds of millions of dollars of investments has gone into the Coeur d'Alenes and other mining areas around this country. They are at the cutting edge of mining technology and current science in the field. That is not the reason they cannot compete.

Thank you very much for coming to Idaho.

The CHAIRMAN [presiding]. That's also why they have some unused investment tax credits.

Senator SYMMS. I would like to say on that unused ITC, I am still working to see that the mining industry is treated fairly with comparison to the steel industry in that Bill, and I think we have—I am hopeful we will be successful to get part of that back, because Senator McClure's point is exactly on target. Try to stay modern, try to get new equipment, and then have unused ITC, and then the people in Washington change the rules on you, and I think you are entitled to refundability if anyone else is in our economy.

The CHAIRMAN. Again, I want to publicly express my appreciation for your attendance here.

Our next Panel willbe Duncan King with Stauffer Chemical Company, Harry Ireland of Sunshine Mining Company, Jack Kendrick of The Bunker Limited Partnership, John Jewitt of Chevron Resources Company, Jackie Stephens, U.S. Borax and Chemical Corporation.

Mr. King.

STATEMENT OF DUNCAN KING, STAUFFER CHEMICAL CO.

Mr. KING. Thank you very much, Senator McClure. It's an honor to be here.

I represent the other side of the mining business, the nonmetallic. In listening to the comments this morning, I don't see any difference between the hard rock miner and the soft rock miner, if you will. The problems are the same. Right now there's more employment I presume in the soft rock in the southeastern part of Idaho than there is in northern Idaho. But the phosphate business is very dependent upon the agricultural segment of the United States, and it's in trouble as are all of our basic industries.

I can't speak as some of the Press calls their local mining magnets, because I have been an operator all my life, and I've operated in an operating environment, and I can't speak for such a large and diverse group as these mining people as most magnets do often.

It is obvious that the minerals business is not doing well. Quick changes are necessary. Mining has always been a tough, resilient industry, one that has the tenacity to stick to it through the rough periods and quickly forge ahead when good times change. It requires a small capital investment to play the game; yet the potential against were large. This allows the small mines and small miners to exist and grow. Suddenly the regulation area hits. Things went into a spin. It suddenly became an expensive business, and the little guy couldn't compete. These regulations cover the entire United States mining industry. Unfortunately for the United States producer, the minerals business is world-wide, and these additional costs of production made the United States less competitive. The regulator now had virtual control of the mines and manufacturing facilities and for that matter still does. In spite of this, the industry has kept plodding along.

Now, we have a new wrinkle. Our competition has become the foreign countries we helped set up in the minerals business by giving them our technology and our money. In the United States we are no longer competing on a one-to-one basis. The minerals industry is furnishing money through taxes so that the federal government can loan—I think they give it—to our competitors, who turn around and through various subsidies depress the mineral prices world-wide.

We are supposed to understand that underdeveloped countries need the break. The break is our backs. In spite of the regulations, in spite of the cost of labor, in spite of the withdrawal of more mineral-bearing land, the industry would still have a chance if this country would stop spending money to our competition with little or no restrictions. In my opinion we need to tighten the money supply to our competition.

I have never understood foreign aid as it is practiced, and the billions we give to the World Bank is incomprehensible. They must be needed, as every administration both Republican and Democrat has upped the ante. But we can ill afford to have our no-strings-attached money policy continue. Every basic industry is suffering because of it. Countries that accept our money should be held accountable for its use. If it's used to generate unfair competition against us, they should be cut off, period.

Secondly, the minerals industry needs a major breakthrough in the treatment of our ores. Research and development is time-consuming and expensive. The mining people do not have the money nor the manpower to adequately handle this advanced foreign need. This means the federal government must fund research organizations to work with the mineral operators at a higher rate to do a basic research of the minerals area. Private research firms, universities with mineral colleges and government research departments need additional supports for this more dated research. The miners are so busy trying to survive and put out fires, that we really have little or no time for wondering "what if."

Thirdly, let's keep our technology at home. We are rapidly becoming the underdeveloped.

One last comment. It is my sincere opinion as a nonmining magnet that the minerals industry would be in total disrepair without the hard, dedicated efforts of Senator McClure, Senator Symms and Congressman Craig. Most people in Idaho have not had the opportunity I've had to see these members of Congress consistently try to protect our industry. This Idaho delegation certainly carried the industry-saving provisions in the Tax Bill, the Superfund Bill, the Sanctions Bill just to name three. Their task is unbelievably difficult. We are a small handful of people trying to survive in a naive society. During our troubled times minerals, like food, is thought to come from stores. Protecting the nation's and industry's source position requires strong and knowledgeable members of Congress. Less would be a travesty. Thank you very much.

The CHAIRMAN. Mr. Ireland.

STATEMENT OF HARRY B. IRELAND, SUNSHINE MINING CO.

Mr. IRELAND. The Shoshone County, Idaho mining industry has never been in worse condition in its history, with unemployment figures having reached 43%. Six years ago, 6,000 people were employed in the industry which now employes only some 500 people. The cause—depressed and still declining silver prices. In each of the last five years, Mexico and Peru have increased their silver produciton which in aggregate exceeded 34% and 23%, respectively. This increased production has ocurred even in the face of declining prices, which are presently below the domestic cost of production. In order to save the domestic silver mining industry, something should be done to increase the demand for silver and to limit the silver production of Mexico and Peru.

When Congress established the U.S. dollar in 1792, it consisted of 371.25 grains of pure silver. Silver continued to be a strong ingredient in our monetary system for the next 170 years. With the Silver Purchase Act of 1934, the government sought to achieve and maintain a 1-to-3 ratio of silver to gold in monetary stocks.

President Kennedy, in 1961, reversed this 170 years of history. He requested then Secretary of Treasury Dillion to withdraw silver from the monetary reserve. This action was taken to avert a coinage shortage and lead to the de-monetization of silver. Kennedy was wrong to reverse the course of our history regarding silver monetary policy and we should take this opportunity to right this wrong. When Kennedy took this action, U.S. Treasury silver stocks were approximately 2.106 billion ounces. By 1970, these stocks were effectively gone and the U.S. changed from a net exporter to a net importer of silver (approximately 120 million ounces in 1985 which amount was in excess of our domestic industrial consumption). The industry's depression has been brought about by feeding the market with some 2 billion ounces of silver from U.S. monetary stocks in the last 20 years and increased production from Mexico and Peru in a declining silver market.

To repair this damage, we recommend that President Reagan revoke former President Kennedy's executive order and state that his policy is to return silver to the monetary reserves of the United States.

If we can hold some 262,000,000 ounces of gold in reserve, why not silver? After all, the United States, Mexico, Canada and Peru are the major producers of silver while Russia and South Africa are the major gold producers.

Other incidental benefits and opportunities would flow from this policy. For example, with Mexico being the western world's major silver producer and exporter to the United States, and a primary beneficiary of U.S. generosity in the form of loans and loan bailouts to help its ailing economy, it would be very appropriate and helpful to encourage partial repayment of its debt in the form of silver. Any such silver could be placed into the United States silver monetary reserve. Can we jump through hoops to help Mexico survive its economic problems and at the same time, ignore the grave problems of the domestic mining industry?

Some of the benefits of this recommended action include a more viable silver industry, reduction of unemployment, "hard" money confidence lent to the dollar, greater confidence in the U.S. banking system, and promotion of U.S. interests and those of its western partners rather than those of Russia and South Africa, the world's major gold producers.

We believe our industry's urgent problems can be overcome and these benefits realized if the President takes the recommended action, especially with regard to the silver monetary reserve.

Thank you for the opportunity to share our views with you regarding the state of the mining industry in Idaho and those suggestions which we believe will alleviate depressed conditions in the industry.

The CHAIRMAN. Thank you very much. I appreciate your testimony.

Mr. Kendrick, I believe you are next.

STATEMENT OF JACK W. KENDRICK, PRESIDENT, BH PROPERTIES, INC. AND GENERAL PARTNER, BUNKER LIMITED PARTNERSHIP

Mr. KENDRICK. Mr. Chairman and members of the subcommittee: My name is Jack Kendrick. I am the president of BH Properties, Inc., the general partner of Bunker Limited Partnership, an Idaho limited partnership which purchased in 1982 the major mining and metallurgical assets of the Bunker Hill Company of which I was also the president and chief executive officer. These holdings include Crescent Silver Mines, Inc., owner of the Crescent Mine; Syringa Minerals Corporation, owner of the Bunker Hill Mine, a lead smelter and refinery, a silver refinery and an electrolytic zinc plant. The partnership also owns a 50 percent interest in the Star Mine. None of these mines or plants is presently operating; however, five years ago they employed over 2,000 men and women in the Silver Valley of North Idaho.

In preparing for this hearing, I searched for a word which accurately characterizes the present state of our domestic metals industry. I was forced to conclude that my meager vocabulary includes no such word. The situation is indescribably difficult.

Mine closures are commonplace and metallurgical processing capability is a fraction of what it was a decade ago. Mineral industry employment in the Silver Valley is down almost 90 percent since 1981 and total Shoshone County employment has declined over 60 percent, from 8,800 jobs to about 3,000 presently employed. Moreover, as stark as this last statistic is, it actually understates the problem by not recognizing the large number who are working at menial tasks and, consequently, are "underemployed."

Although we have cut wages and benefits, increased productivity, and taken many other extreme austerity measures, we have not been able to escape the severe economic consequences of this deplorable situation. Many large, time-honored, well-respected corporations have seen their financial resources dwindle and their stock prices and credit ratings plummet. Some smaller companies have simply disappeared. Bankruptcy is no longer the sole province of the mismanaged. It has come to the point that the financial hemorrhaging must be stopped or our industry will not survive much less prosper.

The primary problem, of course, is low metal prices. Adjusted for inflation, most metal prices are at or below levels last seen during the Depression of the 1930's.

The villains in this tragedy are many and are afforded extensive media coverage. Free trade which is certainly not fair trade. An overvalued U.S. dollar which encourages offshore production and exporting to this country. Foreign production subsidies. Below market financing by the World Bank, Export-Import Bank and the International Financial Corporation. We read and hear about these factors every day. We become almost blase about them. But make no mistake, they have all contributed to the current depression in metal prices and, coupled with excessive and wasteful governmental regulations, have left our industry fighting for its life.

What we have heard far less about, until only recently, are those steps which can be taken to preserve our domestic mineral industry. The conventional wisdom, of course, says we should simply wait for an upturn in the price cycle. Waiting is a luxury we can no longer afford. Consequently, following inquiries from our Idaho congressional delegation, the Secretary of the Interior and the Secretary of Commerce, an informal committee comprised of mining industry executives proposed the following (the first four would be effective for base and precious metals, the balance pertain exclusively to silver): (1) Voluntary production cuts by our major foreign competitors (Mexico, Peru, etc.). (2) Voluntary quotas by those same countries on metals exported to the United States. (3) Countervailing duties on subsidized foreign production. (4) Production payments or interest-free loans to be repaid when prices recover. (5) Require partial repayment of foreign debts with silver. (6) Remonetize silver as an integral element of our currency reserve. A portion of the GSA stockpile could be used to implement this program. (7) Reactivate the silver purchase act. (8) Broaden our silver coinage program to include the minting of several new sizes and denominations. A legal tender, one-ounce silver coin with a face value of $10 might be well received and would produce significant seigniorage for the U.S. Treasury. (From 1966–70 the Treasury's general fund gained $2.3 billion due to the differnce between the face value of its coins and the cost of their component materials.)

We recognize that some of the foregoing may be politically or diplomatically difficult to accomplish. We are also modestly encouraged by some of the preliminary measures which have been taken. However, our domestic mining industy is on a crash course with extinction. It is impossible to overstate the gravity of the situation. If you feel I have, come and walk the streets of our silver valley for a few hours. Talk with the people. Witness the hopelessness and despair.

This whole tragic situation cries out for quick, decisive, unprecedented action. Your interest and assistance are greatly needed and appreciated.

Thank you.

The CHAIRMAN. Thank you, Mr. Kendrick.

Is Mr. Jewitt here?

[No response.]

The CHAIRMAN. Mr. Stephens.

STATEMENT OF JACKIE E. STEPHENS, NORTHWEST REGIONAL MANAGER, U.S. BORAX

Mr. STEPHENS. We appreciate the opportunity to provide testimony on problems of the mineral industry in the Northwest, and we would like to thank Senator John Warner for agreeing to chair this hearing. We would like also to give a special thanks to our local Senators Steve Symms and James McClure, and Congressman Larry Craig of Idaho.

U.S. Borax has been mining borates for over one hundred years near Boron, California, and mined potash from the state of New Mexico and the province of Saskatchewan for many years. We have also been exploring for a metals mine for twenty some years, although we have not put one into production. Considering present metal prices, it appears that we have been very lucky!

Fortunately for us, we have had good profits associated with the mining of borates, and have not been demolished by low metal prices as most of our competitors have. Since 1971, we have seen the exploration community in Spokane dwindle from 25 major companies to less than 3 or 4 at present. Some companies cut their budgets, some cut their budgets and laid off personnel, and some left town or got out of exploration completely. Plus 80% of all exploration geologists are presently unemployed. We are fortunate to be one of the few remaining companies who is still actively pursuing exploration for metallic and industrial minerals in the Northwest, and still have a healthy budget and staff.

The mining industry in general is made up of three major divisions: exploration, development, and mining. Although U.S. Borax has experience at all three levels, the Spokane office has been solely an exploration office for fifteen years, but has recently started development of one major silver-cooper mineral occurrence near Noxon, Montana. We have explored in the contiguous Northwest, British Columbia, the Yukon, the Northwest Territories, and Alaska since 1969. Major metal deposits have been found by U.S. Borax and I'm sure that you have heard of some of them. Others you will be hearing of soon!

Exploration represents the future of the mining industry; it is the research and development arm of the business, exploring and finding new sources of supply as existing non-renewable deposits are depleted. The profound decrease in exploration activity is a reflection of the weakened state of the mining industry, and also indicates that new domestic supplies of minerals necessary to our economy are not being sought after, discovered and developed to replace existing reserves (now being used). A very dangerous domestic scenario is being staged. Because of these cuts in domestic production the balance of trade deficit is further hurt.

How has this situation developed? In a large part, it is been due to the continued depressed prices for a number of metallic and nonmetallic minerals. Real metal prices are lower now than anytime since the Great Depression of the twenties. The present prices of silver, copper, lead, zinc, molybdenum and uranium are all inadequate to support anything but extremely high grade classic deposits. Unfortunately, most of the easily accessible high grade deposits in this country have been found and mined. Some additional high grade ore bodies, and numerous lower grade deposits surely exist, but there must be strong incentives to search for these buried hidden deposits. Also these buried low-grade deposits require expectation of a relatively stable price for the particular commodity, and governmental regulations that encourage mining. U.S. Borax is presently developing one of these large low-grade deposits near Noxon, Montana, and will certainly need strong governmental support of existing regulations to continue with this properties development. Asarco has already brought in a twinsister to this type of deposit at Troy, Montana, and is apparently making a profit at todays low metals prices.

Presently, the mining industry has few profits, little pride and is only viewed as a nuisance-industry by the average citizen and politician. Our good Idaho Senators Steve Symms and James McClure, and Congressman Larry Craig are certainly exceptions to this average. They believe that our mining industry is very important for our national security and economy, and for local jobs. Needless to say, they are staunch supporters of a strong domestic mining industry, and we are very thankful for their support.

Mining companies have grown accustomed to the cyclic nature of their business, and have adjusted to it, mining lower grade ores when prices are high and accumulating reserve funds for the inevitable reduction in price of their product. In the late 1970's, this stability began to diminish, with the expansion of foreign production of metals. This foreign production was often financed by the International Monetary Fund (IMF); loans were used to expand facilities and increase production during a period of oversupply of most mineral commodities.

These loans alone are unfair subsidies, but the fact that they realistically will probably never be paid back, makes them even more an unfair gift to our foreign competitors (governments). These mines, particularly in South America, would be unable to operate without such loans, because they are often uneconomic operations to begin with. Production is maintained for social and political purposes, to generate foreign exchange and keep the work force large. The result is an oversupply of metals, forcing prices down further on worldwide markets. The United States mining companies, their employees, and associated suppliers and service companies are all damaged by this distortion of the free market system, and will continue to be, as long as these warped foreign policies are condoned by our government.

The U.S. mineral industry can compete with any other country in the profitable production of minerals on a fair basis. Fair trade, not free trade, is the issue. We only ask that competition occur on similar terms. It is ironic that billions are spent to protect the farmer from the operation of worldwide economic forces, while logging, mining, and oil and gas production are exposed to these forces without government protection. Mining is no longer recognized as an essential basic industry that must be maintained for the continued operation of our industrial society, and as an important component of our national security. This has to change, if we as a nation are to survive.

If the critical nature of the mineral industry was healthy and sound there would be increased support for needed mineral education and research. Because many of our better deposits have been mined, the United States will need the most up to date exploration techniques and the best mining and processing technology available in order to compete in world markets. The industry will also need trained and experienced geologists, engineers, and underground miners. But on the contrary, my son was majoring in geology, until he found out that there was no chance of him getting a job upon graduation, and he had to make a change to a business major to survive. If a healthy industry is maintained, these disciplines will flourish on their own. If the industry is allowed or in fact encouraged to decay, students will not (and presently, are not) enter these fields, and the loss of the capacity to produce minerals will accelerate. Certainly we would become extremely dependent on foreign economies, friendly or otherwise.

Another important aspect of exploraton is access to mineralized areas. While we support the concept of limited wilderness preservation, we are dismayed by the lack of mineral resource data that is collected prior to withdrawing these areas from operation of the mining laws. If wilderness is to be created, it should remain open to reasonable prospecting and mineral development operations. An ore body is a very rare unique geologic occurrence, and cannot be relocated or moved. Because mining impacts such a small area, exploitation of most of these rare unique occurrences must be seriously considered the highest and best use of the land. Changes of wilderness boundaries must be considered and occasionally augmented, accordingly to the worthiness of the enclosed mineral deposits. Most of these conflict problems between mineral and wilderness could have been avoided if a thorough mineral survey had been done before large acres of land was emotionally tied up as wilderness. This will cost more tax payers dollars in the short run, but would be very beneficial to all citizens in the long run. It is recommended that more local involvement be solicited in helping create wilderness boundaries, and less lines be drawn at a distance in Washington D.C.

U.S. Borax also supports the preservation of animals, including the "threatened species" grizzly bear, but it also reserves the right to be able to encourage the development of a unique mineral property and coexist with the great grizzly. But because we sincerely feel that animals are also important, we have donated $160,000 to the Montana Department of Fish and Game to study the grizzly bear over the past four years. Four grizzlies have been trapped, radio-collared and monitored. Three grizzlies are still alive and well, and the study continues. Remember, the grizzly bear is not an endangered species, it is quite prevalent in many other parts of the world, but is threatened within the Cabinet Mountains of Montana, and we intend to carefully deal with this important issue. Considering major dealings with the United States Forest Service of the Cabinet Mountains region, it should be said for the record, that the managing foresters have been tuff (which has cost us real dollars), but fair.

U.S. Borax has no complaints of how we are being dealt with by the Kootenai National Forest supervisors or staff. We have although heard of serious problems with other government managers of federal lands, and no doubt some testimony will be given on such matters. Where such problems (lack of fair support of the development of natural resources) do exist, and testimony is given as evidence of the problem; an investigation of the problem should be quickly accomplished.

Overall profits (ROI) in the mining industry have classically been less attractive than most other major industries, and only special tax incentives have made mining investment somewhat sane. The federal government can encourage continued mineral production by equitable tax treatment, including the retention of the depletion allowance and the expensing of exploration costs. Exploration, development and mining are capital intensive; but very important industries, which certainly deserve special encouragement. Acquisitions and disposals from the strategic stockpile should be made in ways which help promote price stability for the subject commodity. Now is no time to cause forced dumpings of the metals stockpiles to further falsely depress prices for users.

In summary, fair trade, increased funding for mining education and research, access to mineralized areas, an equitable tax policy, and the recognition of the critical national security implications of a healthy minerals industry should be included in any government policy concerning the mineral industry. A well regulated domestic mining industry should be sought after, not looked upon as a nuisance to be dealt with by government. The development of our Nations great natural resources should be selfishly guarded and encouraged by Government. By preserving fair competition and the incentive to find and produce minerals, the federal government can help insure the maintenance of a healthy domestic mineral industry, and surely some of the problems associated with the mineral industry of the Northwest will also be alleviated. Thank you for having an interest in mining.

The CHAIRMAN. Thank you very much.

Mr. Jewitt?

STATEMENT OF JOHN W. JEWITT, MANAGER, ENGINEERING AND DEVELOPMENT, CHEVRON RESOURCES CO.

Mr. Jewitt. Mr. Chairman and members of the subcommittee, my name is John Jewitt. I'm manager of engineering and development for Chevron Resources Company. Part of my responsibilities include managing development of our Stillwater Mining Company Platinum and Palladium Mine in Stillwater County, Montana. I appreciate the opportunity to appear before this subcommittee today representing our Stillwater project. Stillwater Mining Company, located about 80 miles southwest of Billings, Montana, is a partnership among Chevron, Manville and LAC Minerals of Toronto with Chevron Resources Company as managing partner.

Just last week we announced our plans to construct the mill and mine support facilities at Stillwater. As you know, this decision comes after many years of exploration and evaluation of the platinum and palladium mineralization in the Stillwater complex. We will now be placing this country's only platinum and palladium mine into commercial production by mid-1987.

We reached our decision to put the mine in production after conducting a test mining program since last September as part of a $42 million development plan approved by the partners last year. The test mining effort successfully verified our cost and ore grade projections and, of course, the prices for platinum & palladium have improved dramatically in recent weeks.

We believe that a competitive domestic supply of these important metals is highly desirable and we remain concerned that the sale of these metals from the national defense stockpile could adversely affect our development plans for the Stillwater Mine. First, let me briefly describe our project.

The platinum and palladium mineralization we are planning to mine at Stillwater is found in a steeply dipping, narrow zone within a unique geologic formation called the Stillwater complex. The mineralized zone is known to extend over a 30 mile trend along the northeastern flank of the Beartooth Mountains. This large mineral resource has been estimated to contain about 225 million combined ounces of platinum and palladium by the U.S. Bureau of Mines. Geologic exploration and evaluation of this large resource has been underway since the late 1960s, with over $60 million risk money spent to date. It will take about $30-$35 million more to bring the mine to commercial production.

Only a small portion of this trend has been explored in detail, hence the mineable reserves are only partly known. We have recently completed a mine feasibility study which outlined ore reserves containing over 85,000 ounces of platinum and 250,000 ounces of palladium in proven and probable ore and over 370,000 ounces of platinum and 1.2 million ounces of palladium in possible ore. The ratio of palladium to platinum in our ore is estimated to be three to one, making it the only primary palladium resource in the world. We fully expect these ore reserve estimates to increase substantially as additional drilling is extended along the trend during mine development and operation.

We have concluded from our studies that commercial mine development is economically justified given our present knowledge of geologic conditions and production costs, and our product price expectation.

There remains sufficient uncertainty as to the economic feasibility of the project; however, that a relatively conservative approach to commercial mine development has been adopted. We are currently beginning construction of an ore concentrator and plan to initiate commercial operation at a relatively small production rate (500 tons per day mill throughput) in mid-1987. At this rate we would produce about 75,000 ounces of palladium and 25,000 ounces of platinum each year. If conditions are favorable, we plan to double that output as early as warranted. Further expansions and a very long mine life are possible thus ensuring a significant and dependable supply base for many years to come.

We currently employ about 150 people at the mine and would employ over 250 workers at the 1,000 ton per day operating rate. These new primary jobs are forecast to create at least 100 secondary jobs in the county. Our annual payroll is estimated to exceed seven million dollars. The project will increase the local tax base by 25 percent. In addition to tax revenue, we will be providing over two million dollars of financial assistance to local governmental units for building new school facilities, additions to sewer and water systems and for road maintenance and improvements. We believe our development plan is environmentally sound, and not only would provide substantial economic benefits directly to Montana, but also would begin the development of a domestic supply of metals that have national importance.

The proposed administration plan which calls for eliminating platinum group metals from the national defense stockpile and selling these metals over the next five years is likely to seriously disrupt the free world markets for platinum and palladium. The mere decision to sell the 1.25 million ounces of palladium and 450,000 ounces of platinum currently in the stockpile would immediately create a huge market overhang.

Selling this material into the market even over a period of time would undoubtedly depress prices for some time to come. Such a result would certainly change our thinking regarding price forecasts and could well bring about the interruption of the Stillwater development.

Even if the platinum and palladium now contained in the stockpile were sold over a five year period, the quantities are so significant that there is little doubt that such sales would have a serious impact on market prices. The quantities to be sold would represent about 25 percent of the annual U.S. consumption of palladium and over 10 percent of the U.S. platinum consumption for each of the five years.

The U.S. is virtually 100 percent dependent on imports for new supplies of these metals. Over 90 percent of these imports are from the Republic of South Africa and the Soviet Union. (We see today the result that the threat of supply disruption of platinum has on its price.) Most certainly these metals should not be eliminated from the strategic materials stockpile altogether.

They shouldn't be sold off not only because of their importance to our national defense and economic security but also because of the adverse impact that disposal would have on the ability to develop a domestic source.

Stillwater Mining Company's initial production of platinum and palladium is small in relation to the domestic demand; however, the potential resource is enormous. In the event of a national emergency, production from an existing mine could be expanded quite rapidly. Developing a new mine in the Stillwater complex from scratch to a significant production rate would likely take several years even in emergency conditions. If the existing stockpile were retained, it could be used during the time it would take an on-going small production source, at Stillwater, to expand to meet critical needs.

In conclusion, Stillwater Mining Company is now developing a small, secure domestic supply of platinum and palladium. Our development has been planned in an environmentally sound manner and includes plans for eliminating any adverse "boom town" impacts on local communities. The project has the strong support of the people of these communities.

We are very excited about finally developing a mine in the Stillwater resource and are optimistic about its long-term future. It would be unfortunate if a shock to the market caused by sale of the Government stockpile were to cause cancellation or delay in developing this unique domestic source. We urge Congress to adopt a strategic metals policy that retains platinum and palladium in the national defense stockpile and does not impede the development of a competitive domestic source of these important metals.

Thank you Mr. Chairman.

The CHAIRMAN. Gentlemen, thank you very much for your testimony. It is challenging.

There have been a number of suggestions that have been made in a variety of statements. The threat has been clearly outlined. And I guess, Jack, I have to say your list of suggestions is too aptly summarized when you immediately followed that by saying we recognize that some of the foregoing may be politically or diplomatically difficult to accomplish. Some of it is just that. But I also recognize the truth for what you said immediately after that, that we are in desperate circumstances, and we have to try.

Some of those things that have been mentioned, remonetization of silver, I have been a hard money advocate for all of my life. I have worked for a number of organizations, and I don't know how many discussions I've had with Henry Day, who all of us know, who was a staunch advocate of that position as I have ever known. I have talked to people in Idaho associated with economic education, attended meetings in New York City and in Florida in that regard over the last several years. I don't know how many hours I devoted trying to avoid the steps that were taken during the Kennedy administration and subsequent steps that completed that action. I strongly disagree with what has been done. I strongly agree with your statement that we ought to remonetize. I think there is nothing that could be better for the economic stability of this country. We wouldn't be in the dire straits we are in today if we hadn't gone the wrong direction a few years ago. But getting that reversed is not just on a wish list, it's one of the most political arguments we could undertake today. But I will continue my efforts. But I don't want to encourage anyone to believe it's possible.

There is one possibility, whether it's good or evil, but it will be debated, with respect to some kind of import or production subsidy of silver, and that is associated with the plight of the oil industry. Six months ago or eight months ago you would find very few people in the oil industry that wanted this kind of support price for the oil industry. There are more in the oil industry today who are saying that they want something done. I mention that only because the oil industry is a giant in the economic forces in this country and, therefore, have more political clout. The silver industry is very small in total economic terms in this country and, therefore, has relatively lesser clout on national policy. I don't know what's going to happen in the oil industry for their request for some kind of protectionism policy, but there is certainly growing support in that direction. And if that becomes successful, then I think the door's open for similar actions with other commodity groups in our country which is one of the reasons it's difficult to get it done, because once you start, all those people are going to be in the line. I don't know where we are going to go, but I agree with you, we are in desperate circumstances in the silver industry.

And some of you made reference to the actions that have been taken by our friends in the northeastern United States to get more silver dumped on the market. Their appetite is insatiable. Two billion ounces they got released from our monetary stocks; and if I recall correctly nearly all of that two billion ounces went at $1.29 an ounce, which was one of the greatest rapes of the taxpayers of this country I have ever witnessed. I wish it had been left in the monetary stocks and kept there as a backing for our currency. But it was really the result of twin forces, those who wished to get away from backing the value—or the idea of currency coinage being a storehouse of value. They wanted it only as a medium of exchange with no value. I don't know anybody but the government that can take perfectly good paper and perfectly good ink and make them both worthless. But that's what managed currency leads to. And we have seen it in the late 1970's.

There isn't anybody more interested in reducing the deficit, getting our economy in order than the three at this table. That would be the largest contribution that we could make. But I believe there is no one here who doesn't recognize the plight of the industry and the plight of the community particularly in the Silver Valley. But we are probably preaching to a choir here—One of the purposes of this hearing is, it's principal purpose is to be able to give you the opportunity to present to our colleagues in government, both in the Congress and in the administrative side a better picture of what is really happening so that perhaps we don't have to preach just environment, but take a little bit of information to those others who are not as convinced as we.

I don't believe I have any questions at this time.

Senator SYMMS. I want to thank the witnesses for excellent statements.

I note the hour is late, and I know that I have a schedule that has already started that I'm not at at the present time. So, I am going to withhold any questions.

Thank you all for excellent statements, and I appreciate your contribution at this hearing.

Mr. CRAIG. Thank you, Mr. Chairman.

All of you, thank you for your testimony. They are tremendously insightful and helpful, and I have found out more about platinum in the last few minutes than I knew before.

I would hope that, Steve, your $160,000 investment in the Grizzly Bear pans out.

Thank you all very much.

The CHAIRMAN. The next panel is composed of Darrell Spilde of NERCO Minerals Company, George Tikkanen of Cominco American, Charles D. Sneed, Jr., of Callahan Mining Company, Jim H. Boyd of Newmont Mining Corporation and Gordon Aland of Monsanto Company.

Mr. Spilde.

STATEMENT OF DARRELL E. SPILDE, VICE PRESIDENT, EXTERNAL AFFAIRS, NERCO MINERALS CO.

Mr. SPILDE. Mr. Chairman, members of the subcommittee and Idaho delegation, good morning.

Mr. name is Darrell E. Spilde. I am vice president of external affairs for Nerco Minerals Company. I live in Fairbanks, Alaska, which is where our company is headquartered.

Nerco Minerals Company is a leading domestic producer of silver and gold with mining operations in Idaho, Nevada and Colorado. We also have exploration properties in several Western States inclucing a major property position in Alaska.

OUr parent company, Nerco, Inc., is a "Fortune 500" company and a top coal producer based in Portland, Oregon. Nerco is the mining and resource development arm of Pacificorp, a diversified, investor-owned utility also based in Portland.

In Idaho, Nerco Minerals Company is the owner and operator of the Delamar Silver Mine located in Owyhee County. Delamar is an open pit operation which began production in 1977 and currently mines about 6 million tons of material annually. The mine produces about 1.7 million ounces of silver and 30,000 ounces of gold per year.

I appreciate the opportunity to provide a few comments on the state of the mining industry in the Northwest. I intend to cover some general conditions affecting the industry first, and suggest an agenda of issues which will be important to us. I will then discuss some specific issues facing the industry in Alaska.

GENERAL CONDITIONS AFFECTING THE MINING INDUSTRY

A strong domestic minerals industry not only provides jobs and stimulates internal wealth, but is also essential to the national security and well being of the United States. Mining provides the source of raw materials necessary to sustain America's agricultural, manufacturing, energy and national security needs. The U.S. mining industry consists of all those firms and individuals engaged in mineral exploration, project development, extraction, beneficiation and smelting/refining.

In 1985 the value of domestic processed non-fuel materials fell 4 percent to $244 billion. Domestic production of several major mineral commodities declined, even though construction and automobile manufacturing, major users of mineral materials, rose slightly. The strong dollar resulted in increased imports in both raw and finished goods but exports fell, resulting in a merchandise trade deficit of $149 billion compared to $123 billion in 1984.

Cyclic and structural changes continue to hvae major impacts on the mining industry. On the market side, these include: Increased global commodity supply; soft demand; changes in georgraphical concentration of demand (decline of U.S. market growth); currency fluctuations; technological-induced changes; and, altered marketing practices due to the rise of Government influence on supply decisions.

These factors have combined to create soft prices, tougher foreign competition and excess supply capability worldwide. This set of factors has also created a tendency towards costrained market access due to protectionism in some areas and the extension of preferential treatment to selected countries in others.

A fundamental characteristic of mining is that the prices of mineral commodities are determined internationally. Neither American producers nor the Federal Government can control the price at which minerals are bought and sold. Consequently, U.S. producers are unable to pass on cost increases to customers.

The minerals industry has responded to economic difficulties by: Slashing costs and reducing work forces; closing uneconomic operations; emphasizing productivity improvement through technological innovation and associated upgrading of employee skills; and, shifting exploration and development efforts towards commodities, such as gold, that maintain higher demand and price potential.

As a result, the mining industry today is leaner and more competitive than it has ever been and is therefore in a position to benefit greatly from improving mineral prices. However, large investments will be required to develop mines as existing ore reserves become exhausted.

The mining industry operates best in a free market and trade environment. We do not believe Government should manipulate the market on our behalf.

However, Congress should be aware of areas where government has created obstacles, increased the cost of doing business, and interfered with the national objective of sustaining a healthy mining industry.

In particular, three areas of concern include: Government and tax policies; regulatory policies and procedures; and public lands mangement. I would like to briefly discuss each of these individually. I want to note that much of what I have to say is not new to the members of this panel. In fact, in will reinforce our interest in many issues which you have been addressing in the Congress on our behalf.

1. GOVERNMENT INVESTMENT AND TAX POLICIES

Constructive tax policies and foreign investment policies will be essential for continued growth in our industry. In the area of tax policy Congress must recognize that mining is an extremely capital-intensive activity. It requires significant amounts for exploration, mine development, and for productivity improvements necessary to compete in today's market place. Tax policies that retard investment activities will severely affect our ability to compete with foreign producers who are often subsidized by their governments. For example, the proposal adopted by the U.S. House of Representatives in H.R. 3838 to cut back on the percentage depletion allowance for hard minerals would have severely impacted our industry.

In the area of Government investment policy, the United States should oppose bilateral or multilateral financial support that directly promotes mineral production from projects that are otherwise uneconomic. Lending institutions should only make loans to fiscally responsible parties, whether private or national, and only to commercially viable mining projects at competitive interest rates. International monetary fund programs should not cause adverse effects or create unfair competition among mineral suppliers. Lending activities should not be encouraged where such financing contributes to the production of minerals that are already in excess of world demand. Unfair trading practices that allow importation of raw materials or other commodities that can be met by domestic suppliers in an otherwise competitive environment should be discouraged.

2. REGULATORY POLICIES AND PROCEDURES

Governmental policies, at all levels, have a heavy impact on the ability of the U.S. mining industry to comply with environmental and other regulatory standards. Additionally, there is inconsistency between regulatory agencies often resulting in a regulatory program that is counterproductive. There are individuals who appear to be bent upon shutting down mining completely using "environmental protection" as an excuse rather then ensuring that mining and environmental values are reconciled in a fair and productive manner.

It is estimated that a newly discovered orebody, located in a relatively accessible area of the Western U.S. will require $3 million for permitting, special equipment and environmental protection mechanisms for every 50 million dollars spent in capital. In addition, 18 months to 3 years of permitting activities will be required before all regulatory conditions are satisfied.

At The Federal Level The Industry must deal with at least 20 separate Federal departments and agencies. The diversity of the Departments dealing with mining regulation is similar at the State level. The potential for policy confusion, overlap and inefficiency is obvious.

In its 1985 declaration of policy, the American Mining Congress set forth several suggestions for improving regulatory practices. These are: Streamline and accelerate permitting and licensing procedures for new projects or modification of existing facilities. Eliminate jurisdictional overlaps and conflicting goals among regulatory agencies. Rely on performance standards instead of design and engineering specifications to achieve stipulated goals. Base proposed rules on proven scientific data, derived by means of established scientific procedures, and recognize the limitations of analytical tools such as theoretical models. Mandate peer review within the scientific community of proposals and their presumed justifications. Allow affected parties full access to the factual basis for agency actions by means of cross-examination of witnesses and consultants relied upon by the agency.

3. PUBLIC LANDS MANAGEMENT

Since 1964, over 80 million acres of wilderness have been designated in the United States most uninventoried for its mineral wealth or other resource values. In addition, another 229 million acres has been withdrawn from any effective exploration or liklihood of mineral development. A considerable amount of this land is already known to contain geologic potential for mineralized areas and, in several proposed wilderness areas in Colorado, Idaho, Nevada and Alaska contain well used roads, trails and mining claims. The absence of resource inventories and lack of balance between renewable resources values and the nations need for minerals, is inconsistent with intent of the Wilderness Act.

Section 2 (A) of the 1964 Wilderness Act states in part, "no Federal lands shall be designated as "wilderness areas" except as provided for in this act or by a subsequent act."

Section 2 (C) describes wilderness as "where the Earth and its community of life are untrammeled by man," and further, "with the imprint of man's work substantially unnoticeable."

Section 4 (D)(2) states in part, that, "such areas shall be surveyed on a planned recurring basis, consistent with the concept of wilderness preservation, by the geological survey and the Bureau of Mines the mineral values, if any, that may be present."

It is quite clear what Congress intended to be included as wilderness. It is also clear that Congress recognized the importance of mineral potential that might lie within proposed wilderness areas. Nevertheless, since the passage of this act, wilderness advocates and some Members of Congress have pushed hard to enact legislation that will forever lock up valuable resources without inventory.

The National Strategic Materials and Minerals Program Advisory Committee states, "the U.S. mining industry is caught in a legislative-regulation-litigation gridlock over the use of public lands that threatens both the industry and the Nations security." Public lands litigation by single interest preservation groups is a tactical weapon being used to short circuit the land use decision making process.

The U.S. mining industry supports the basic concept of wilderness as intended by Congress. But it is time to move ahead with the concept of multiple-use management of public lands. Specifically we recommend that: Prohibitions and excessive restrictions on exploration, development and mining should be removed from proposed wilderness study areas. Mineral inventories should be conducted before wilderness areas are proposed to Congress. Lands recommended for futher study should remain open to mining pursuant to mining law. Lands recommended for multiple use should be so managed. Congress should declare the rare II environmental impact statement to be legally sufficient and not subject to judicial review.

We, as a nation, need proper balance between environmental concerns and our need for a healthy minerals industry. It is our earnest hope that the balance will be restored.

Now I would like to turn to Alaska, a State with great mineral potential.

ALASKA

The Alaska mining industry consists primarily of coal production, placer gold mining, and hardrock mineral exploration. The industry employs approximately 3,600 workers and minerals production in 1985 was valued at 226 million dollars.

Depressed metals prices, regulatory uncertainties, State and Federal land closures, and legal challanges by environmental groups have been responsible for a reduction in minerals exploration in the State. Exploration expenditures declined from 76 million dollars in 1981 to 9 million dollars in 1985. More than twenty major mining companies have "broken their picks" in Alaska during the past five years and some are now investing their exploration capital in foreign countries.

Historically, placer gold mining has flourished in Alaska. In 1981 there were approximately 700 operating placer mines employing 3,000 workers. In 1985, placer mines produced 190,000 ounces of gold with a value of 61 million dollars.

Today, there are less than 100 placer mines operating with fewer than 1,000 workers. An unfavorable economic climate, strict regulatory enforcement of water quality standards and legal uncertainties have had obvious negative consequences on this segment of the industry. Without technological improvements or changes in public policy, placer mining will continue its downward trend.

As stated earlier, the minerals industry requires a sufficient land base to conduct exploration and development. Alaska certainly has the land base to support a vibrant minerals exploration program.

However, most of Alaska's mineral lands are controlled by State (28%) and Federal (60%) governments. Plus 80 percent of all Federal land in Alaska is withdrawn from mineral entry. Those lands designated for "multiple use" typically have other land use restrictions including access problems created by the Alaska National Interest Lands Conservation Act (ANILCA). Several promising mineral areas in the State are surrounded by conservation units. In some cases, access requires approval from State and Federal legislative bodies and executive branches. With each restriction or regulatory requirement our costs increase and investment decisions become more problematic.

Even without the regulatory constraints, Alaska will remain a difficult place to conduct business. Our estimates indicate that to develop and operate a medium size hardrock mine in Alaska cost between 50-100 percent more than a comparable project in the contiguous U.S. This is primarily a result of high labor and transportation costs and lack of infrastructure. But the potential of discovering a world class, Bonanza-type deposit offsets some of these risks.

Presently some efforts are taking place at the State and Federal levels to assist mining in Alaska. For example:

State government is underwriting some infrastructure development in remote areas for specific mining operations like the red dog project.

The U.S. Geological Survey and Bureau of Mines are attempting to identify and map mineralized areas, although significant additional funding is required. (Alaska is clearly underexplored by national and international standards).

State and Federal Land Management Agencies are trying to coordinate planning activities through the Alaska Land Use Council, although jurisdictional disputes and "turf battles" continue.

State and Federal commerce agencies are identifying new markets in the Pacific rim which could result in increased trade, as well as reduced trade deficits for the Nation.

State and Federal environmental agencies have teamed-up to study new water pollution control technologies for placer mining.

So efforts are being taken to help the industry during these hard times. The question is whether these efforts will be enough to halt the disinvestment trend.

CONCLUSION

Miners are often considered eternal optimists. We continue to believe that: Prices will improve; new technologies will help us be more competitive in the international marketplace; the executive and legislative branches will help us out; and, the courts will ultimately rule in our favor.

Time will be the test. With continued assistance from this subcommittee and Congress, we continue to be optimistic.

Thank you for this opportunity to speak and I would like to express our specific appreciation to the Idaho delegation for their strong support to our industry.

The **Chairman**. Thank you very much, Mr. Spilde.

Mr. Tikkanen.

STATEMENT OF GEORGE D. TIKKANEN, VICE PRESIDENT, METALS AND EXPLORATION, COMINCO AMERICAN INC.

Mr. **Tikkanen**. I am George D. Tikkanen, Vice President, Metals and Exploration for Cominco American Incorporated. I would like to give you some background on Cominco American. My company operates a lead-zinc mine in Missouri, a gold mine in Nevada and a phosphate rock mine in Montana. We also manufacture and sell fertilizers and electronic materials. Cominco American is the U.S. subsidiary of Cominco Ltd., a major Canadian mining company.

With the exception of Nevada gold properties, the overall state of the mining business is poor. We compete in a worldwide metal market and recent low prices for zinc, lead, copper and silver have caused the closure of many operations. Those facilities still operating are either losing money, or unable to fund normal equipment replacement and exploration programs. The potential for new mineral discovery is good, but because funding has been reduced, current mineral exploration is very poor. As a result of low metal prices, a large number of mining organizations have ceased exploration altogether and many talented people are unemployed.

I do want to state that I support the U.S. Bureau of Mines research concerning better methods of mining and concentrating minerals. However, much more work is needed on the basic task of the geological mapping of the country. This should be the U.S. Geological Survey's highest priority and mapping should continue even if at the expenses of other duties or projects.

On the topic of natural resource development, reconizing a long-term need, Cominco American is currently developing the Red Dog Mine which is located northwest of Kotzebue in the DeLong Mountains of Alaska. Cominco American has spent four years and nearly $40 million to develop the Red Dog mine to the construction phase. The total cost of the project is estimated to be $400 million.

The Red Dog Mine is a tremendous natural resource. It contains 85 million tons of ore, grading 17% zinc, 5% lead and 2.4 oz. of silver per ton. The United States currently produces less than one-third of its zinc metal requirement. The Red Dog Mine alone will more than double present U.S. production, and we expect that when in full production, it will be the largest zinc producer in the world.

As we are currently developing this natural resource and plan to have it in production in the early 1990s, I am qualified to discuss with you current impediments to the development of natural resources and comment on future government actions that could affect these barriers.

A major barrier to development of natural resources is the financial risk that will be undertaken. Present proposals on income tax reform are a case in point, with the proposed changes in the new tax law widely impacting the mining industry. Four changes are particularly important: Repeal of investment tax credit; longer recovery periods for depreciation; 34% tax rate for ordinary income and capital gains; 20% alternate minimum tax on book income.

Depending on corporate conditions, these changes will cause different results. For instance, Cominco American's taxes would have increased 15% if the Tax Reform Act were applied to the Company's income for the three profitable years that have occured in the last five-year period. The increase is primarily the result of the application of the 34% tax rate rather than a 28% tax rate to major capital gains on divestitures during the period, along with the loss of investment tax credit.

On one hand, in a period of moderate profitability, no major growth, moderate capital expenditures, and without substantial asset dispositions, the changes do not have a significant impact. The tax rate decrease, from 46% to 34%, offsets the loss of ITC and depreciation benefits.

On the other hand, we hope to promote periods of economic growth and capital investment to provide for corporate growth and employment. In this instance, the longer recovery periods for depreciation, the repeal of ITC, and the alternative minimum tax place a potentially heavy burden on capital intensive industries like ours. This burden makes the retention of percentage depletion essential to the mining industry.

The percentage depletion allowance is a significant and fundamental requirement for the mining industry. It must be maintained to convince bankers and stockholders to take the risk necessary to perpetuate a domestic mining industry that must compete in a world-wide market.

A non-financial barrier to the development of natural resources is the reduction of access to public lands. The presence or non-presence of ore bodies cannot be satisfactorily predicted on the basis of relatively quick evaluations by government agencies. Detailed exploration over a significant period of time is required. This includes geological, geophysical and geochemical surveys, followed by drilling. In our present situation, I believe that the investigation of mineral values in wilderness area has been inadequate. Further, exploration and mining should not be excluded from withdrawn areas. The surface area needed to service an ore body is insignificant in relation to the potential areas available for wilderness areas, national monuments and parks.

A second non-financial barrier to the development of natural resources is regulation. I must emphasize that the mining industry is not against protection of the environment. The mistakes of the distant past are still with us today and will not be repeated. With regard to regulation, I can use the company's experience with the Red Dog Project as an illustration. Of the $40 million expended to date, a significant portion of that has gone to the permitting process. Again, this is before our company has made the decision to begin production. There has been a pre-application stage, which took one year and has now been completed. After that, an environmental impact statement was prepared and this took two full years to complete. In part, this is because the environmental impact statement was assessed by five federal agencies and five state agencies and covered all aspects of the project, including environmental, social, economic and archaeological concerns. A "one stop" permitting procedure would be a great improvement.

Now, we are beginning to obtain the operating and construction permits. Cominco American will need 20 major permits and uncounted minor permits and approvals in order to construct the road, port, mill, accommodations and storage facilities for the project. Such permits require excessive time as the agencies must study and review the proposal and then hold public meetings. In fact, in the last 40 months, our representatives spearheading this development have attended 400 meetings. All the while time goes by, costs mount and the jobs which this project will provide to Alaskans remain future prospects.

Cominco American's right to develop the property was obtained in 1982, through an Agreement with the NANA Corporation, a Native corporation. As a result of the delays inherent in natural resource development, production will not begin until the early 1990's. It was virtually impossible to predict in 1982 the price of zinc in the 1990's. Yet in order to have the opportunity to be in production in the 1990s, the Company had to decide to proceed in 1982 and spend some $40 million by 1986.

Other regulations and laws have an adverse effect on mining and employment related to mining. For example, in conjunction with the Alaskan Industrial Authority, Cominco American is building a road and port site in Alaska. All things being equal, we want the use of U.S. ports in the Pacific Northwest for shipping zinc concentrate to Cominco Ltd.'s zinc refinery in Trail, British Columbia. Much of this zinc would then return to the United States. In shipping Red Dog concentrate, $8 to $10 million per year will be expended for port handling costs and inland transportation. However, the Jones Act requires that U.S. flagged vessels must be used if the shipment is to be made from Alaska to a lower 48 port. The present economics of world shipping make it impossible to consider the use of U.S. flagged vessels. This would cost up to three times as much as using a foreign flagged ship. As there is no feasible way to get this waived, it is cheaper to build new port facilities in Vancouver, British Columbia and use Canadian railroads to move the concentrate from Red Dog to the refinery in Trail. The inadvertent result of the Jones Act is to cause the use of a Canadian port.

In conclusion, metal mining is a high-risk business in a world competitive market. Operating mines must be allowed to make profits in order to offset the high cost of exploration, development and low periods in the industry.

Our tax structure must be competitive worldwide or adverse taxes could prevent the development of natural resources. Regulations must also be realistic, containing fair and timely procedures. Public lands must remain open to mineral location and the system of staking claims must be maintained to allow for the broadest possible participation in the difficult job of mineral discovery.

The favorable treatment of the mining industry allows people to work and the government wins. Annual income from some 400 jobs for Alaskans at Red Dog will be about $50 million and along with the payment of taxes, purchase of supplies and other expenditures, $100 million will be contributed to the Alaskan economy each year. Production from the Red Dog mine will be largely exported, thereby contributing to the reduction of the balance of payments problem. This mining development will promote Alaskan markets and trade, as well as encouraging investment in the state. Therefore, reducing the barriers to the development of natural resources is beneficial to the country.

The CHAIRMAN. Thank you.

Mr. Snead.

STATEMENT OF CHARLES D. SNEAD, JR., CHAIRMAN AND PRESIDENT, CALLAHAN MINING CORP.

Mr. SNEAD. I am Chairman and President of Callahan Mining Corporation, a New York Stock Exchange company that has been involved in mining activities in the Coeur d'Alene mining district of Idaho continuously since 1912. Callahan owns the Galena Mine and receives 50 percent of the profits from operations conducted by Asarco, Inc. Our company also participates to the extent of 5 percent interest in the Coeur Mine, which also is operated by Asarco. Callahan is managing activities at the Caladay Project, a deep shaft exploration project east of the Galena Mine, where Callahan has spent nearly $26 million since 1980 in an effort to discover a new silver mine.

The down trend of silver prices has severely affected Callahan's financial condition and its ability to continue funding the Caladay Project and other activities seeking new mineral resources. we are not a large company but have been putting back into the Coeur d'Alene district virtually every cent that we have taken out. We have taken these funds only from our own pockets—not borrowed, not gone to the equity markets—but, frankly we are about at the end of our rope and cannot continue without some improvement in silver prices.

Callahan's revenues from the Galena and Coeur silver mines have fallen from more than $17.6 million in 1980 to $4 million in 1985. Revenues from these sources in 1986 should approximate $1.5 million if there is no further drop in prices. Outlays for exploration, including Caladay, have dropped from nearly $10 million in 1981 to $6.1 million in 1985 to half that in 1986. During this period, Callahan was force to close numerous exploration offices across the country, including Charlottesville, Virginia; Newnan, Georgia; Coeur d'Alene, Idaho; Scottsdale, Arizona; and Hot Springs, Arkansas. The company's geologic staff is half that which existed three years ago.

More than 60 percent of the $40 million in exploration outlays have been for the Caladay Project, and most of these outlays have been for the facilities that permit deep exploration to take place. After five years of work on facilities, we only started exploration drifting and drilling in early 1985. Every effort has been made to continue the project at three shifts per day. But, as revenues dwindled, Callahan had no choice but to cut back activities and, in February 1986, discontinued high cost drifting work to concentrate on diamond drilling. Activities were cut to a one shift basis at the end of the first quarter and have reached a virtual standstill at Callahan's cash flow from Galena and Coeur decreased to pennies per ounce produced. More than 60 people were employed at Caladay when activities were at their height, but the work force, including contractors, has now been reduced to approximately 10.

If silver prices do not improve, Callahan must determine shortly whether to continue the Caladay Project or shut it down. Additional drifting work in the property is too expensive at current revenue levels. It costs approximately $90,000 a month to keep the property pumped out and activated, which expenditures cannot be justified if funds are not available for meaningful exploration work.

While low silver prices have had a dramatic affect on Callahan's ability to continue the Caladay and other projects and impacted our company's financial condition, I am not testifying here today in an effort to receive some special subsidy for the silver mining business in Idaho. Silver mining is a worldwide activity, and we must bring in new mines that are economic in that setting. To introduce subsidies would only bring on additional silver properties which would not be otherwise economic, and this in my judgment is not prudent. A better answer is to have a domestic and worldwide economy that is capable of consuming all of the silver that can be produced from this district. While I am not in favor of subsidies, I do feel that coinage programs adopted by many countries have benefited silver consumption and would recommend that every effort be made in Washington to establish and enhance programs of this type because of their great interest to collectors an investors alike. I recognize that since 1932 the paper dollar has been viewed as almighty by our government, and precious metal coins have not been permitted because of their potential attraction against the dollar. Gold and silver coins from South Africa, Canada, and other countries have sold well in world markets, and the United States Government has lagged far behind and been almost negligent in failing to participate in this activity.

I also would advocate that a program be developed with Mexico and Peru which involves their silver production in the repayment of the debts of these countries. There is precedence for such a program on the oil side as concerns the strategic oil reserve. The President has directed that the reserve be established in full, and Mexico oil is being purchased for this purpose, which is helping Mexico pay its debts. In the alternative, a program to permit Mexico and Peru to deliver silver as collateral to lower the interest rate on their loans could be a great benefit to these countries and get some of their silver off the world markets which should causes prices to rise.

I appreciate the opportunity to present my views to the Committee today and will be pleased to answer any questions you might have.

The CHAIRMAN. Thank you. Mr. Snead.

Mr. Boyd.

STATEMENT OF JAMES H. BOYD, DIRECTOR, GOVERNMENT RELATIONS, NEWMONT MINES CORP.

Mr. BOYD. Mr. Chairman, Members of the Committee, my name is Jim Boyd. I am Director of Government Relations for Newmont Mining Corporation. Newmont is a diversified mining and energy company with interests in many states which depend on mining for their economies.

Newmont, just as all other basic metal mining companies today, is working in a global economy where the price of our products is set by the international market. As such we do not have the luxury of passing on costs wrought by the impact of government regulations and other forces affecting our industry. Any subsidies of the mining industries in foreign countries, not matter whether directly or indirectly form major loans to these countries have the effect of keeping lead, zinc and copper prices at levels which are below those experienced during the Great Depression and causing almost insurmountable financial problems for the industry.

I would like to take this opportunity to commend Senator Symms for his unrelenting efforts to introduce and support legislation introduced by others which would provide some degree of relief for the industry. Let me cite just a few examples of how Senator Symms has worked toward keeping the domestic mining industry alive:

In the major tax reform bill reported out of the Senate Finance Committee on May 7, a key amendment for the mining industry was offered by Senator Symms and approved by a vote of 12–8. This amendment provided that mining exploration and development costs are not to be treated as tax preferences in the calculation of the corporate minimum tax—thus reducing a potential additional tax burden for most mining companies.

As a member of the Environment and Public Works Committee, Senator Symms has tirelessly opposed committee efforts to impose costly and scientifically unwarranted acid rain controls upon the mining industry—controls which would heap huge expenditures upon a alreay highly regulated domestic metal smelting industry struggling to regain a competitive position in the world marketplace.

Another area in which the Idaho delegation has come out in support of the mining industry was the recent determination on July 1 by the Environmental Protection Agency to provide for the regulation of mining wastes by the states under Subtitle D of the Resource Conservation and Recovery Act (RCRA). After months of study and a subsequent report to Congress as required under RCRA, EPA Administrator Lee Thomas made the correct decision that the high volume, low toxicity wastes unique to the mining industry did not warrant regulation under the hazardous waste (Subtitle C) provisions of the Act. The costs if mining waste were regulated as hazardous waste would be totally out of proportion to any possible benefit that might be derived from such a regulatory system.

Senators Symms and McClure and Representative Craig each contacted the EPA Administrator in support of this landmark decision in the face of adverse criticism, calling it a sensible, realistic and plain common sense approach to a fundamentally unique situation. We commend Mr. Thomas for his decision, and the Idaho delegation for rallying around this decision. We now urge the EPA to move ahead to provide assistance to the States to put reasonable programs into place. Likewise, it is imperative that the States move as quickly as possible to fulfill their mandate so that any hesitancy is not apparent and therefore cannot be interpretered by the EPA staff as a need for a full blown federal regulatory program. Newmont Mining and the rest of the domestic mining industry stands ready to assist the states with technical expertise in development of a reasonable and timely regulatory program.

After numerous meetings with EPA staff by members of the industry, myself included, we believe that it is the goal of certain members of the EPA staff to do nothing more than prove that the states are unable to develop and implement their own regulatory program for mining wastes. If this should be proven to their satisfaction, they will be asking Congress for enforcement.

In the event EPA determines that they need to have regulatory authority over the mine waste programs and EPA attempts to get Congress to provide that authority, we must be assured that legislators such as Senator Symms and Senator McClure and others who support a viable domestic mining industry are available to resist such efforts and keep the mine waste program under the jurisdiction of the States, thereby minimizing the impact on the industry.

I thank you for the opportunity to testify before you today. I would be happy to respond to any questions.

The CHAIRMAN. Thank you, Mr. Boyd.

Mr. Aland.

STATEMENT OF GORDON ALAND, SENIOR MINING SPECIALIST, MONSANTO CO.

Mr. ALAND. My name is Gordon Aland, senior mining specialist with Monsanto Company. Monsanto has a phosphate mine and elemental phosphorus plant in southern Idaho, near Soda Springs. The phosphate mining industry has two components—fertilizer and elemental phosphorus. The fertilizer industry lives and dies with the agricultural economy, and you know the problems agriculture is facing. One Idaho fertilizer company was forced to shut down for approximately 6 weeks this summer to reduce inventories.

Another fertilizer company, Beker Industries, closed its Soda Springs' plant this summer and goes for a fire sale on the bankruptcy block next week. The elemental phosphorus industry is a little better off. For the Monsanto Soda Springs plant it is a good news-bad news situation. Our Soda Springs plant is running wide open. The bad news is that for our Soda Springs plant to run wide open, we will shut down some 600 jobs and close our Tennessee plant this fall.

One of the problems we face as a Western phosphate industry is that we are unique. Western phosphate mining produces about 10 percent of the volume of ore that the mines in Florida produce, but our mining methods and mines are so different that we cannot be classed with the Florida operations—and most of our production comes from Federal Phosphate Leases as opposed to private mineral rights in Tennessee, North Carolina, and Florida. Because there are only five phosphate mining companies in the West (Beker Company was the sixth before they shut their doors), the regulatory agencies try to force-fit the Western phosphate mining industry with another mining industy in order to regulate us.

Bonding is an example of this problem. Apparently the Bureau of Land Management has had trouble collecting rent and production royalty from some of its lease holders in coal and leasable fluid minerals. The BLM is going to institute a broad sweeping bonding program.

It is my contention that the Western phosphate lease holders do not need to purchase more bonds to ensure the BLM can collect the rents and production royalties that are due them. 43 CFR part 3500 section 3509.4-2 reads:

> If the lessee fails to comply with the provisions of the Act, or of the general regulations promulgated and in force on the day of the lease, or at the effective date of any readjustment of the terms and conditions thereof, or defaults in the performance or observance of any of the terms, covenants, and stipulations of the lease—then the lessor may institute appropriate proceedings—for the forfeiture and cancellation of the lease.

Section 10, Part II of the phosphate lease itself reads:

> Proceedings in Case of Default—if lessee fails to comply with applicable laws, now existing regulations, or the terms, conditions and stipulations of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease shall be subject to cancellation.

For Monsanto, FMC, Simplot Company, and Stauffer Chemical Company, all who have or are now spending tens of millions of dollars in maintenance and upgrading, the threat of losing the feedstock source for these plants costing tens of millions of dollars is much more real than a bond.

And let me explode a "Whip." A Whip is a widely held, inaccurate postulation. In discussing bonding increases it was constantly suggested that Monsanto Company wouldn't be hurt by these increases. It's true that Monsantc Soda Springs will not fold with the increased bonding requirements, but we can be bled to death from a thousand cuts. This increase in bonding is not a cost that is necessary.

It does not help production or efficiency. The cost is pulled out of capital that could be used to upgrade, improve, train, or pay employes. And the cost may be substantial with the trend the liability insurance is taking today. This is another example or unnecessary, unchecked government regulations that increase costs without a cost benefit ratio.

A second area that the elemental phosphorus industry is concerned with is Superfund financing. Monsanto Company, along with the other chemical companies, supports both financially and philosophically the Superfund concept. Our problems lies with the philosophy that two industries, the chemical industry and the petroleum industry, should pay the entire clean-up costs for all of the orphaned sites while many industries and companies contributed to the problem.

EPA has identified over 6,000 individuals, businesses, local State and Federal agencies from over 33 industries as "potentially responsible parties" at various Superfund sites. It is our contention that there should be a broad-based tax to help pay for broad-based Superfund sites.

In the elemental phosphorus industry there is over-capacity world-wide. The domestic industries are facing foreign competition that is able to under cut U.S. producers in the U.S. market because they receive favorable subsidies from their own governments. We are continuously trying to run our own operations safer and more economically.

As I earlier indicated, Monsanto made the decision to shut down its Tennessee operation and concentrate on the Soda Springs plant. At Soda Springs we are always looking for a more economical way to operate. Through early retirement programs last Fall, we reduced our salaried staff by 10 percent. We recently received approval from the Idaho PUC for an innovative power contract that helps keep our costs down.

My plea today is for you to restrain the bureaucracy from eating up our cost reduction efforts through slapstick regulations and taxes that put us back at a disadvantage with foreign competition. Thank you.

[Attachment to Mr. Aland's statement follows:]

February 26, 1986

THE CASE FOR A BROAD-BASED SUPERFUND TAX

There continues to be a great deal of misunderstanding--in Congress, in the media and in the public generally--about how much revenue and from which sources funds for the federal Superfund program should be collected to clean up inactive hazardous waste disposal sites.

There also has been little public recognition that responsibility for the problems the program is addressing spreads far beyond the two industries--chemical and oil--which have paid virtually all of the Superfund tax.

These two factors have contributed greatly to the Congressional deadlock over how to raise money for a much larger cleanup program.

HOW SUPERFUND WORKS

Superfund was created to give the federal government legal authority to clean up--or to compel those responsible to clean up--inactive hazardous waste disposal sites that may pose a threat to the environment or people's health.

Part of the law also gave the federal government authority to raise money (primarily through taxes on the chemical and oil industries) to help pay for cleanup activities.

Money from the fund is used when disposers at waste sites cannot be identified or found; when they cannot afford to pay; or when they refuse to pay.

Superfund is designed to pay for the "orphaned" site cleanup (or the "orphaned" portions of a site) where responsibility cannot be established. When responsible parties are identified and are able to pay, Superfund money is not used for cleanup activities or, if it is (say, for emergency remedial work by the EPA), then the law provides that responsible parties reimburse the fund.

WHO IS RESPONSIBLE FOR WASTE-SITE PROBLEMS?

EPA has compiled a list of "potentially responsible parties" at Superfund sites (that is, businesses and individuals the agency believes are responsible for creating the problems at these sites). EPA has identified approximately 6,000 businesses (from at least 33 major manufacturing industries), individuals and local, state and federal governments as PRPs at these sites.

An alphabetical listing of these "potentially responsible parties" follows. Also included are lists of "potentially responsible parties" from two Superfund sites and of the "PRPs" identified in 13 Superfund sites in New York state.

These examples--and the larger EPA list--illustrate an important point: that responsibility for paying for the cleanup of abandoned hazardous waste sites extends well beyond the original two tax-paying industries.

The original Superfund law requires the chemical and oil industries to pay for cleaning up sites (or portions of sites) for which they are responsible. Other businesses in other industries are required to do the same. However, only the chemical and oil industries are now paying into the fund to cover the costs of cleaning up sites where disposers can't be found, can't pay or refuse to pay.

Other industries which have also contributed to the waste-site problem through the years also should help pay for cleaning up these "orphaned" sites through a broad-based tax on manufacturing industries.

The CHAIRMAN. Thank you very much, Mr. Aland.

The two sheets that are appended that present a case for a broad base Super Fund tax will be made a part of the record, and the list attached thereto will be made a part of the subcommittee files.

Congressman Craig, do you have any questions?

Mr. CRAIG. Thank you very much, Mr. Chairman.

No, I do not have questions of the individuals, and I appreciate their time and their patience in the process. And I trust that you view your testimony as of value, because it is. It's important that your statements and the statements like yours be constantly and continually entered into committee records, congressional records, all those kinds of devices that we use for communications in the United States Congress. We simply cannot, must not slack off on the message that we send to some of our colleagues in the Congress who truly operate from a philosophic base that I call an arrogance of wealth. And I say that not to mean individually sloppy, but that they perceive a society and an economic base of that society so wealthy that we can do any and everything necessary to adjust the whims and expect somebody to pay for it. And that's really what your industry has been subject to in the last 10 years in my opinion, that kind of attitude. It doesn't mean we did not need to correct some of our errors of past operational styles, but at the same time it clearly has not demonstrated a desire to be advocates of an economy that allows productivity and flexibility in the sense of the type that you need and you speak for. That's on the production side.

Certainly on the environmental side as it relates to public land policy as some of you have spoken to, that is a constant battle. And I know that Senator McClure, Senator Symms and I have been engaged in it; certainly not I longer than either of our two senators. And it is a continual battle to recognize the need for a strong multiple use base public land policy that will allow exploration, discovery and development in environmentally sound ways. So, please do not grow weak of heart, recognizing that, as I do, that I think your testimony is continually important and that you must continually speak out not just for the sake of your own investment but for the sake of this country as a whole. Thank you very much, gentleman.

The CHAIRMAN. Thank you, Congressman Craig. And I thank all of you.

I can't help but add at this point something I meant to say in Boise yesterday. At a press conference one of the reporters at the press conference in response to certain charges that had been made in other quarters asked me if I really believed the press was biased. And I tried to answer that question as best I could without inflaming passions on any side of that article—or any side of that charge, but there is one thing that I should have said and did not.

Responsible officials who are elected to jobs or appointed to jobs in state and federal government who have official positions representing the government or the people are obvious sources of information and comment with respect to the issues that come before the public for decision. Respected broad-base organizations are also well recognized as sources of opinion that can and should be sought and ought to be publicized. But when any self-appointed protector of the environment makes a statement anywhere within earshot or can be sought, they automatically get more coverage than any of you gentlemen, more coverage than a statement by the EPA, more coverage than a statement by the Bureau of Mines, more coverage than a statement by the Governor of the State of Idaho, there's got to be something screwy when that happens.

Now, I wish I had said that yesterday. I have been waiting for a chance to say it since. I can't help but note that, and you note that. The Supreme Court has often talked about what Congressman Craig was saying, you cannot be weak of heart. The public is led by what they see in print whether we like it or not. And if you gentleman are weak of heart, public opinion changes inevitably in ways against your interests. If we grow tired of the battle, public opinion will certainly swing again.

I remember a few years ago a hearing a public media had in Salmon. And at that particular time it was cattlemen that were having a terrible time with the Forest Service, so they were telling me. The Forest Service was requiring them to pay for drift fences that the Forest Service was constructing. I remember one comment at the end of that meeting when one old rancher said to me, and he was an old rancher, probably about the age I am now, he said to me, "I have been fighting them for so long, I give up." I said, "So do I. I quit." He said, "No, no, not you. I quit. You keep on fighting."

I guess that's kind of our message. Somehow we have to hold a balanced public dialogue of opinions that really do represent the majority of the people. Minority opinions cannot be ignored, but they ought to be clearly labeled minority opinions and not give them the status of majority opinions in press coverage. And I think the press really does need to somehow look at the way in which they seek out opposing opinions to balance their stories, and in seeking that balance, that opposing opinion, it somehow unbalances the public dialogue.

So, keep up your good work. I appreciate your appearance and statements today, particularly note Mr. Snead, your comment, that you thought it was important to come here. I think we should also note that other witnesses have come from great distances to appear and testify here today. And again I want to say thanks to Senator Warner for sharing these hearings and take time in his busy schedule to be here in Idaho to help make a public record about real causes and problems and perhaps some solutions to a dilemma that has national significance. Thank you very much.

Senator SYMMS. No more comments, Mr. Chairman. But thanks to you for your leadership, and thank you for helping encourage Senator Warner to come to Idaho, and thank all the witnesses.

I took your statements with me, those of you that are at the table now. I apologize I was unable to be here, but I had another appointment that had been set for some standing time I had to go make. I do appreciate all of your testimony, and we'll keep up the fight as best we can.

The CHAIRMAN. Thank you, gentlemen, very much. I appreciate your testimony.

Before closing the hearing, I want to publicly recognize the help we've gotten from the U.S. Marshal's office in Moscow with Elton

Walker in attendance to help provide security for this hearing. We very much appreciate the help out of the Marshal's office.

If there be no further testimony to come before the Committee, we'll stand adjourned.

[Whereupon, the hearing was adjourned.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

UNITED STEELWORKERS OF AMERICA
AFL-CIO-CLC
District 38
Subdistrict 7
NORTH 205 UNIVERSITY ROAD, SUITE 5
SPOKANE, WASHINGTON 99206-5225
TELEPHONE (509) 922-5411
ROBERT J. PETRIS, *Director*

August 25, 1986

Mr. Robert L. Terrell
Professional Staff
Committee on Energy and Natural Resources
U. S. Senate
Washington, D. C. 20510

Dear Mr. Terrell:

Enclosed herewith is text of my written testimony to the Committee on behalf of the men and women of the Silver Valley, Shoshone County, Idaho.

Sincerely,

Steve Brown

Steve Brown
Staff Representative

SB:mw

Enclosure

I appreciate this opportunity to offer written testimony to the Committee on behalf of the working men and women of the Silver Valley. In preparing my remarks, I have sought to reflect their views as accurately as possible. First of all, there is a general concensus that Govermnent is part of the problem and therefore must be part of the solution.

There are Government secured loans to foreign countries for industrial development.

Government elected to remove silver from the monetary system.

Government sets policies on foreign trade.

We feel that government must take action and the time for action is now.

The most widely accepted course of action seems to be to restore silver as a monetary base for our currency.

Another view widely held in the Valley, is that this problem is not new. It began in the 1970's with drastic reductions in the price of lead and zinc. This fact led to the closure of The Bunker Hill Mine and the loss of over 2,000 jobs. Since that time, we have witnessed the slow, agonizing decline of a once viable economy. Unemployment in the Valley is currently over 40%. Many of the business have closed permanently and there is a daily exodus of skilled workers seeking employment in other states. The 40% unemployment figure reflects only those who are left and not the hundreds who have already moved out of the area.

There is resentment here caused by a lack of action. A feeling that we have been ignored by government. Many workers feel that they are only receiving attention now because it is an election year.

In spite of all this, there is still an underlying sense of optimism. A feeling persists that something can be done to save the Silver Valley. These people are rugged individuals and not prone to give up easily. They are willing to work to bring about the necessary changes. They recognize that change will require cooperation. The cooperation not only of business and labor, but of the community as a whole.

In closing, I would urge immediate action be taken to save this community from further decline. The action must be aimed at restoring mining as a viable industry in the American economy.

Respectfully submitted

Steve Brown

Steve Brown
Staff Representative

University of Idaho
College of Mines
and Earth Resources
Department of Metallurgical
and Mining Engineering
Moscow, Idaho 83843
(208) 885-6376

August 25, 1986

Senator John Werner, Virginia
Senator James McClure, Idaho
Chairmen of Coeur d'Alene Hearings
(August 21, 1986)
Committee on Energy and Natural Resources

Dear Sirs:

Will you please include the following attached testimony in the official program of the hearings?

Sincerely,

JR Hoskins

J. R. Hoskins
Department of Metallurgical
and Mining Engineering

JH/ec

Where Tradition
Meets the Future
1889-1989
University of Idaho

The University of Idaho is an equal opportunity/affirmative action employer and educational institution.

My name is John R. Hoskins, Professor of Mining Engineering and Head of the Department of Metallurgical and Mining Engineering, College of Mines and Earth Resources, University of Idaho, Moscow, Idaho 83843. As a way of background I have worked starting as a mucker through mining , timbering, explosives handling, engineer, shift boss and mine foreman in metal mining and non metallic mining activities. I was also a processing plant superintendent in non metallics. I have worked for the Federal Government in research as well as University Research and I have been in education for approximately 25 years in Mining Engineering and Metallurgical Engineering.

In discussing the plight of the mining industry and solutions to be attempted, little has been said about education and research. Rather than belabor the reasons why we are in trouble and the different problems that we have I would defer to the majority of the statements made by the witnesses in Coeur d'Alene for I am essentially in agreement with them. It is sufficient to state that any potential mineral deposit or even an area that may be suspect is of little value in an emergency, since it takes between three and ten years to go through the process of exploration, permitting, planning, development and construction before any production is made. Legislation that would effect mining adversely or positively must consider both the time involved and the human resource necessary to exploit the deposit. This should even be considered when wilderness or lock out legislation is involved. To say that we can examine either cursorily or very meticulously any proposed wilderness area and state that it has or has not a mineral deposit and therefore the area should be locked out permanently is implying that we will not learn in the future better methods for discovering ore deposits. No wilderness area can be guaranteed not to have an extremely valuable mineral deposit in it. We can only state that our present knowledge and ability indicates it may not be likely. A good example is the Crandon Wisconsin deposit in which people have walked over the area for over 200 years and only recently have new techniques shown a major deposit to be present.

Whether we are considering defense, strategic metals or a sound mineral industry for the betterment of the US economy, it is necessary to include the human resource that must exploit the deposit. Current shut downs and exporting of jobs, from surface to underground miner, the transportation capabilities, the mineral processing and the smelting, jobs are being lost by the thousands. Assessing it more accurately, expertise and technique is being lost to the United States. A miner is a specialist, an artisan and is just as essential as top level management in developing a deposit or in processing. As we loose these people, new deposits will require training of individuals who have no experience. Many people leaving the mining world today will never again enter, even if offered a job. Similarly the shift bosses, mine foreman, managers, geologists, mining engineers, geological engineers, hydrologists, mineral processors and metallurgical engineers are critical to an operation. All must be trained or educated and have the experience of working in the deposit or an operation so that they can perfect their expertise. We are loosing this capability.

Not only are we loosing the capability of on site operation, but we are discouraging students from entering the mineral industry professions. Whereas we graduated approximately 500 mining engineers yearly in the total United States compared to 55,000 or 60,000 total engineers and 30,000 lawyers, this year we expect not more than 200 mining engineers and likely in 1987 there will be 150 out of a total of 60,000 engineers graduating. Further, as technology advances, faculty members who are highly qualified in new developments, graduate students who become more expert through masters and Ph.D. studies are going to be decreasing and in response to the low enrollments and lack of funding for programs. We have approximately 20 to 25 schools that give mining engineering degrees. We have only 10 that give a Ph.D. in mining engineering yet we expect this group employing approximately 150 to 200 mining engineering teachers to formulate the entire technical knowledge of mining engineering for surface, underground, metal, non metal and coal mines. No other industry is required or expected to do so much with so little. As indicated in several of the testimonies, both universities and Bureau of Mines research is needed. If we are to develop a competitive position through technology we must develop the technology and train the people who can use it . The Bureau of Mines budget is woefully short and the amount of money going to research is miniscule compared to most other fields. Research budgets to water purification, EPA and others are far in excess in what the Bureau of Mines gets and often this information is used adversarily against mining and even the Bureau activity. Universities with state funding dropping off as it has, are prone to cut the smaller departments, particularly in sustaining budgets. Mining is almost uniformly one of the smaller departments across the country in most universities. Where they do exist their budgets consequently are at a bare minimum or even subminimum condition.

If the mineral policy and the concern for the mineral industry is to be taken seriously, it is necessary, in addition to the suggestions for change by the witnesses to include research, both on a federal and on an individual institutional basis. This extrapolates immediately to increased funding that has a very clear and definitive guide. The U.S. Bureau of Mines has done an excellent job in the past of maintaining some form of current and futuristic research to help mining activities. The budget yearly has decreased until now it hardly sustains a viable program. It is essential that the research budget for short, medium and long term be placed on a sustaining and open basis. Whereas coal has been funded through National Coal Rresearch, Energy Department, the Bureau and others, the metal mining industry has had little support other than a small research budget from the Bureau. This should be changed drastically, not only for the mining activity but also for metallurgical activity in processing, recovery and in development of new materials such as composites, ceramics and polymers. Budgets should be such that a program of some magnitude and duration can be sustained rather than a yearly catch up program. Researchers should be enabled to see five years ahead in which they can gradually work toward some technical developments rather than wait each year for possible funding. Much more in-house rather than contracting research should be done, which would require a much larger research staff in the mining field. The metal mining research laboratories such as Spokane, Denver and Minneapolis need the ability to integrate engineers and scientists from various fields to act as a nucleus for university and independent research. To do this they must have a larger staff and facilities than their current ceiling allows.

Reseach results often come from interaction of group or controversial studies by independent groups. Universities have been rather outstanding in developing new trends or new things that were not allowable or were closed out at Federal Facilities. The reverse of course, is also true. Since state funding does not look kindly at mineral industry research in most states, it now is imperative that funding come from federal sources to promote the research by groups that are dedicated to the mineral industry. The concept that funding should only go to those that show the best qualifications would mean that those outstanding institutions in other things not particularly loyal to the mineral industry would reap the benefit of funding only as long as there was money in it. The mineral industry schools are loyal and dedicated to doing a better job, they have the students who are interested and need to have the information relayed and they develop the graduate programs that are essential to keep the industry running at a high technical level. Funding should be made available through organizations such as the Mining and Mineral Resource Research Institutes, the Generic Institutes and the Water Institute. This funding needs to be increased but it also needs to be funnelled to those groups as stated above who have been in the mineral industry development activities for decades. Even though other institutions have done excellent jobs on other activities, they should be restricted from entering in and filtering off the funds that could go to developing and improving the mining institutions.

The current programs of mineral resource research institutes are scattered to 31 institutions, which is questionable. Either decrease the funding to the institutions involved in fuels, ceramics, petroleum, etc. and increase funding to the schools involved in metallic and non metallic mining or separate funding for the latter should be initiated. Similarly the Generic Institutes that are involved in narrow directions should be given a broader scope and a higher level of funding so that they can work with the Bureau of Mines research and industry to solve many of the persistent problems.

History will identify that the U.S. has been in the forefront of the mineral industry activity in the world because of development of new processes, training of people, integration of research, education and production; and, have been quite successful in providing adequate minerals for the United States in competition to foreign deposits of considerably higher grade. We can still do this, but we must develop the expertise and technology to an even greater base than we are today. Much of the developments in technology are coming from foreign sources such as Finland, Sweden, Japan, Germany, France and we are importing many professors from these areas. We are also importing graduate students who have a different philosophy on performance than the normal U.S. philosophy of engineering and production. It is imperative that we look at the education and research part of the mineral industry and see that it also is strengthened if we are to have a strong and viable mineral industry. I believe that a strong and viable mineral industry, as well as other resource industries such as timber, agriculture, and fishing are essential to even a service or information society. Without them I am sure our standard of living will drop.

I thank you for the opportunity of presenting my views of mineral industry needs and the concerns which I and many of my peers have. I am enclosing an article prepared by Ilene Ashworth during the past year. Some of the figures are startling, but the overall article will give you a view of what the mineral industry education picture is likely to be in another 2 or 3 years. It is of particular note to see on page 3 that the 1980-81 graduates in mining engineering was 711 in the United States and in 1988-89 it is projected that the number will drop to 120 students total. This can mean a very serious problem is developing if we want to maintain a strategic minerals and materials base in the United States.

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April 15, 1986

Dr. John R. Hoskins
Department of Metallurgical and Mining Engineering
College of Mines
University of Idaho
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Dear Jack:

I have written a formal report on the undergraduate enrollment study. A copy has been sent to Sharon Connelly at SME and a copy is enclosed for your information. The text of the report are my own thoughts though I have made a serious attempt to include comments from education and industrial people.

The government liaison person here at Penn State and I have been discussing ways of presenting the material to both the general public and appropriate government people. Last week I was in Washington talking to the Bureau of Mines and some staff people on Capitol Hill. Various people suggested that Senator McClure should receive the information. Would you be willing to transmit the information to him?

It is hoped that by next week there will be a public press release. In addition, the information has been sent to Tim O'Neil with a request for at least some form of article in MINING ENGINEERING.

Please let me know if you have further suggestions regarding this report.

Yours sincerely,

Eileen Ashworth
NSF Visiting Associate Professor
of Mining Engineering

EA/lm

Enclosure

AN EQUAL OPPORTUNITY UNIVERSITY

SUMMARY

SUBJECT : STUDY OF ENROLLMENT IN MINING ENGINEERING PROGRAMS IN THE US

BY : Eileen Ashworth, Associate Professor of Mining Engineering at South Dakota School of Mines and Technology, currently on leave as a National Science Foundation Visiting Professor at the Pennsylvania State University.

DATA SOURCE : Twenty-four four-year bachelor degree programs in mining engineering reporting enrollment to the Society of Mining Engineers of the American Institute of Mining, Metallurgical and Petroleum Engineers (SME-AIME) and published yearly in the SME Guide to Minerals Schools.

PERIOD FOR STUDY : 1975-1985.

PURPOSE OF THE STUDY : To evaluate the enrollment trend of students in mining engineering, in response to concerns expressed by individual educators.

RESULTS OF STUDY :

A) In 1978, a maximum of 3,117 students were enrolled. In the 1985 fall semester the enrollment was less than one third, a total of 1,022 students with 485 seniors, 265 juniors, 147 sophomores and 125 freshmen. This trend is expected to continue downward for at least another two years.

B) The decline in enrollment is affecting all mining engineering programs across the country with about the same severity.

C) The prediction for future graduates for the next four years is :

310 in 1985-86, 225 in 1986-87, 145 in 1987-88, and 120 in 1988-89.

(For comparison there were 711 graduates in 1980-81.)

D) Related fields such as geological engineering show similar decline with less than 1,000 students in 1985, a 21% decline from 1984.

E) Employment trends have too many factors to be able to predict with any certainty. 300 new mining engineers/year is suggested, with small increases for the immediate future.

EFFECTS : (The first three are today's effects, not just future.)

1) Closing of some mining programs.
2) Decline in the quality of students remaining in mining programs.
3) Lack of quality US students for graduate school.
4) Based on the present trend, the basic needs of the industry for new engineers will not met as early as 1987.
5) Long term, mining engineers and new mining technology will have to come from outside the country.
6) Lack of quality mining engineers for regulating and solving environmental issues, and dealing with the increase use of underground space for living, transportation, storage of waste, including nuclear, and basing of defense weapons and control centers.

SUGGESTED ACTIONS :

1) Publicity of the study and results to:
    mining programs for use in their student recruiting efforts.
    industry and government to obtain their assistance.
2) Improvement of the mining industry's public image, for example mining does "survive", has interesting, rewarding and challenging opportunities including development of new technologies for mineral extraction, and has an interest in solving environmental problems.
3) Encouragement to industry and government to provide financial help and career-related job opportunities for students through cooperative education programs, internships, summer jobs and special scholarships.

LESS THAN 130 FRESHMEN ENROLLED IN MINING ENGINEERING PROGRAMS IN THE US

The study which has investigated the enrollment in mining engineering programs in 24 universities and colleges has been completed by Professor Eileen Ashworth. Professor Ashworth is an Associate Professor of Mining Engineering at South Dakota School of Mines and Technology (SDSM&T). She is currently on leave from SDSM&T as a National Science Foundation Visiting Professor in the Department of Mineral Engineering at the Pennsylvania State University.

All programs considered in the study award four-year bachelor degrees in mining engineering. These programs provide all the mining engineers for the mining industry and a large portion of the engineers working on environmental problems, storage of hazardous waste, underground projects for cities across the country and the Department of Defense. The numbers used as the base for the study are those reported by the individual programs to the Society of Mining Engineers of the American Institute of Mining, Metallurgical and Petroleum Engineers (SME-AIME) and published yearly in the SME Guide to Minerals Schools.

The study used data for the period 1975-1985. Data before 1975 were not available for all programs and could not be compiled with any accuracy. Some estimation was used to "fill in" information for a few programs in the years 1975-1978. The study makes the assumption that each University's policy for classifying students has not significantly changed over the ten year period.

The numbers presented here should NOT be considered as 100% accurate and quoted as precise numbers. The reporting system relies on information supplied from each program. Some of the programs include students in related disciplines which make the mining engineering numbers appear too high. To off-set this, some programs have students listed in special categories, such as cooperative students. These students were not included, as their class could not be determined easily. The important information contained in this report relates to the trends, the overall picture of current enrollment, a discussion of the results and perceived problem, and a discussion of what can or should be done.

The data compiled can be presented in various ways. The first very obvious fact is that there has been a dramatic decrease in enrollment since the late 1970's. The total enrollment is presented in Figure 1 where "years" refer to the academic year starting in the year specified, for example 1975 represents the academic year 1975-1976. In 1978, a maximum of 3,117 students were enrolled. In the 1985 fall semester the enrollment was less than one third, namely a total of 1,022 students with 485 classified as seniors, 265 juniors, 147 sophomores and 125 freshmen. Since the number of seniors and juniors is significantly higher than the historical number in relation to the lower classmen, the downward trend in enrollment shown in the figure is likely to continue for at least another two years.

Figure 2 shows the relationship between the number of freshmen in the specified year and the corresponding juniors, seniors and graduates produced from that freshman class. The students who register as freshmen may not be the actual people who become juniors, seniors and graduates but historically their number appears to be a good indicator of the interest shown in mining engineering. The dramatic drop in enrollment for all classes after 1982, shown separately in Figures 3(a)-3(d), was mainly caused by lack of jobs for graduates. This was about the time that there was a general downturn in the mining industry. Many employed engineers were laid off.

A large group of freshmen students started to leave the mining engineering programs before they became juniors, choosing other engineering disciplines. This switch is relatively painless as many courses at the freshmen and sophomore level are common to most engineering programs. More important there were significantly less students entering mining programs.

Some universities do not identify freshmen by their engineering discipline. Also many entering freshmen are not aware of careers in mining engineering and do not make the choice, in normal circumstances, to join the mining program until they are sophomores. Junior colleges provide students that enter the university mining programs as juniors. These facts explain why the junior numbers are much higher than those of the freshmen.

However by 1983 there was a dramatic change in this phenomenon. This is shown in Figure 2 as the point where the junior curve falls below the freshmen curve. By this time even juniors and seniors were leaving programs and choosing other engineering disciplines and accepting the incurred delay in their expected date of graduation. Also there were fewer students entering the mining engineering programs at the sophomore and junior levels.

The senior numbers shown in this figure could be confusing for someone not in education. Where did so many seniors come from when there are far less juniors? There is an increasing trend for students to take four and a half years or five years to graduate. These students are therefore counted twice, once when they are first classed as seniors by their university system and again the following year. In fact some students purposely delay graduation to obtain more summer work experience and take additional courses. They believe, a belief borne from facts, that this gives them a better chance in the current limited job market.

On average there have been 1.26 seniors to each junior. The evidence for the trend mentioned above is that this average was 1.22 before 1982 and 1.31 after 1982. The data shows that on average 1.56 of those seniors were needed to produce 1 graduate. This last ratio means that, in general, about 60% of the existing seniors graduate and 40% remain for an additional year or withdraw from the mining programs.

Figure 4 shows the relationship of the 1975, 1980 and 1985 enrollments in 17 of the larger mining programs which have a ten-year history. It is clear that the catastrophic drop in enrollment is shared by all programs across the country and does not discriminate between types of programs, coal mining or hard rock mining, or location.

Detailed enrollment for all the 24 programs studied is presented in Table 1. Since the programs are of different size, direct comparisons of enrollment changes are difficult. These changes can be better seen in Table 2 which presents the same information as a percentage of the maximum enrollment in each of the programs. In general the enrollment in 1985 is about 30% of whatever the maximum enrollment was in the program. Some programs have a 1985 value in the teens and some programs with special circumstances, particularly new programs not established in the late 1970's, have about 50%. The declines in enrollment have occurred at slightly different times depending largely on the local industry's health or demise.

Figure 5(a) shows graphically the percentage drop in enrollment for three very different programs, University of Missouri-Rolla, The Pennsylvania State University, and South Dakota School of Mines and Technology. The main local mining industries are respectively lead-zinc, underground coal and underground gold/surface coal. The enrollment curves are very similar, with the only difference being that the coal mining related program started the downward trend earlier. However the companion Figure 5(b) shows the same information for The University of Alabama, Montana College of Mineral Science and Technology, and West Virginia University. The relative changes presented here are very different. West Virginia University shows the same trends as the other eastern coal-mining program, The Pennsylvania State University, while the University Alabama shows a building program, the influence of students in related disciplines, and only a very recent decline. Montana College of Mineral Science and Technology has been able to maintain a steady enrollment until the last few years, in spite of cut backs and eventual loss of the local Anaconda copper mine in the late 1970's and early 1980's.

Figure 6 shows the relationship between freshmen and juniors and the graduating students of the same entering class. The historical correlation is surprisingly good. Juniors have usually determined their majors, so that the correlation of 0.93 is not unexpected. Freshmen numbers seem to indicate an interest in the specific field of engineering even though in many cases it will not be the same students who will graduate from that engineering discipline. The correlation is 0.90. The graph can be used to predict the number of graduates in the next four years. The results are:

in 1985-86 there will be about 310 students graduating,
in 1986-87 there will be about 225 students graduating,
in 1987-88 there will be about 145 students graduating,
and in 1988-89 there will be about 120 students graduating.
For comparison there were 711 graduates in 1980-81.

Consolidation Coal Company has performed a companion study. Their study derived information directly from the programs which they list. It contains less detail for the undergraduate programs but has included information about graduate programs. Some of the basic assumptions are different but in general the conclusions for the undergraduate enrollment are very similar (Figure 7). The graduate enrollment is on the increase. This will be addressed later in the report.

There is little that can change the number of graduates predicted for 1985-86 and 1986-87. These students are at this moment in the second semester of their junior or senior year. It takes about two years of specialized coursework for a student to become a specific type of engineer. The other coursework is of a more general nature. In fact, if anything, the predicted numbers may be high as there is still an out-migration from mining engineering programs. However there is still time to alter the numbers predicted for 1987-88 and 1988-89. What can be done? What should be done?

Before trying to answer these questions some historical information is appropriate. The mining industry is a financially risky business with large capital investments and long-term projects and has a history of being a "boom or bust" industry. There has been opportunity to make large profits when the markets have been right. Conversely there has been equal opportunity for large losses when the markets were depressed. Mines close and mining engineers lose their jobs. In the past these cycles have tended to be localized, being mainly dependent on the specific mineral being mined, so that when some areas of mining were depressed, others flourished. This caused lateral movement of mining engineers from one type of mining to another, with little influence on the total number of mining engineers employed. Recently, however, all aspects of mining have been depressed. The only bright area has been gold mining and that went through a short period of concern when the price of gold dropped below $300/oz. There are many factors which affect the health of the mining industry, including obvious ones such as the general economy, inflation, limited money supply, and foreign competition, and also not so obvious ones investment in overseas properties, oil prices, and an energy conscious public. Discussing details of these factors is far beyond the scope of this report.

There has been a reflected "boom and bust" cycle in the education of mining engineers. Detailed data as used in this study are not available for the 1950's and 1960's. However an article published in April 1971 [1] showed that 493 bachelor degrees in mining engineering were awarded in 1951-52 and only 138 in 1966-67. The information from this article has been combined with the results and predictions of this study and plotted in Figure 8. The figure gives clear indication of the seriousness of the problem being faced in the immediate future.

The reasons students enter mining engineering are very diverse; their decisions are influenced by parents, peers, counselors, teachers, geographical location, publicity and factors not so easy to categorize. However today, the bottom line is, unfortunately, "will there be a job when I graduate and how much will it pay?"

In the late 1970's and early 1980's there were large numbers of good quality mining engineers graduating. There were many job interviewers on campus to meet with the upcoming graduates. Five or more job offers were made to the good students, allowing them to select for whom they worked and at what location in the country. Even a student with a low grade-point average had one or more job offers. The starting salaries were high close to the highest for engineers. There was 100% placement. In fact civil and mechanical engineers were hired to fill job openings when the pool of mining engineers was exhausted. There was no problem in attracting good students to mining engineering programs.

Suddenly this changed. Students had to have a certain grade-point average just to have an opportunity to meet the few interviewers who came on campus. Hundreds of resumes were sent out to prospective mines by each student. Only the good students were getting job offers and then only one, maybe two. Some took jobs in related fields such as technical sales. The salaries remained relatively high but the placement dropped as low as 50% for some programs.

This is one of the main causes of the dramatic drop in enrollment discussed earlier. Other causes relate to the country-wide reduction in the number of students graduating from high school and the inflationary cost of higher education. Students and their families will not invest four years or more of their time and countless dollars of their money to prepare themselves to work in an industry which by popular belief is on its "last legs".

In general the incoming students do see the mining industry as "dead". They are greeted with Wall Street Journal and Business Week articles headlining the death of the industry, the Fenvessy and Schwab report [2] indicating that there will be a 65% surplus of mining engineers by the year 2000, negative publicity about the environmental and safety problems of mining and, on a local level, mining companies going out of business, family or friends losing jobs and less than full placement of the current year's graduating class.

Unfortunately, many incoming students do not realize that the job they will seek is at least four years away. Conditions, not only in the mining industry but also in those industries which are currently popular, will have changed substantially. It is difficult to get this message across to the potential class of entering freshmen and to a lesser extent existing college students. Already there are layoffs in "Silicon Valley", a possible indication that the industry will not need by 1990 the massive number of students already in electrical engineering programs.

The mining industry is not dead. There will be a need throughout the foreseeable future for energy in the form of coal, metals will continue to be needed and industrial minerals will continue to be in demand. Foreign competition will diminish as the dollar reaches a more appropriate rate against other currencies. The problems of mining minerals and coal will become more complex as novel technology and machines are introduced. There will be a need for an increasing number of technically trained people to help solve these problems.

In fact there is an air of optimism again within the industry. Information from the coal industry [3] shows that by 1994 there will be no new nuclear power plants coming on line. By the same year, the number of coal generation plants will have increased by 85 (Table 3). This is good news for coal mining but bad news for uranium mining. The trend in U.S. coal consumption is predicted to be slowly upward (Figure 9). Various published articles [4,5,6] discuss "how soon the recovery will occur", "increasing consumption and production in coal", and the "industry beginning to feel good about itself". All is not positive. The negatives are challenges. For example costs need to be cut before some mines will be back in operation. Recent government and bank actions [7,8,9] cause concern.

This study has not attempted to include future employment predictions for mining engineering. The Fenvessy and Schwab report [2] does not include enough information for detailed numbers to be interpreted for comparison with predictions of the number of graduates. Their study considered the total number of mining engineers, not how many new engineers would be needed each year. Their growth of 3.6% is a total growth. Thus 3.6% or 270/year does not include any replacements of engineers who have retired or left for other jobs outside the mining industry.

However it is possible to paint a general picture of employment. During this academic year there seems to be an increased interest by job interviewers. It would appear from discussions with various industry representatives and educators that in the order of 300 jobs will be available country-wide. This number is consistent with the Fenvessy and Schwab report. Small increases are expected in future years. One of the larger coal companies has expressed an interest in hiring about 20 new mining engineers and hopes to continue at this level for the next few years. The estimated number of graduating students shown in Figures 6 and 8 is about 310.

All of this indicates that for 1985-86 many of the graduating students should find jobs. Salaries appear to have been maintained at previous levels. A recent article [10], referring to an annual report from the Engineering Manpower Commission of the American Association of Engineering Societies, discusses the high salaries of mining engineers. The actual salaries for mining engineers are not quoted here because the figures are for 1984 and compiled using only a small sample. Also the report contains no information on what percent are employed but the data which are presented indicate that for employed mining engineers the financial rewards are substantial.

The data for employment and enrollment seem to indicate that as soon as 1986-87 there will not be enough graduating students for the expected job market. The picture does remain cloudy as there are a number of young engineers, with a few years experience, who are without jobs. It is very difficult to estimate how many will return to mining engineering once employment in their field of specialty is possible again. Another effect which should be factored into any future detailed study is the early retirement packages offered by many mining companies, which will result in new openings when the company starts to grow again.

Some people respond to these facts by saying, "why not let the natural market forces of supply and demand take their course?" Unfortunately, as already indicated, the supply lags the demand by at least four years. At the time when the mining industry comes back into good health, there will be an increased need for good mining engineers. Because the supply will not meet the demand salaries will "sky-rocket" and job openings will be filled by other types of engineers. The "boom and bust" cycle in mining education is back again in the very near future.

Why cannot we learn from past experience? The "boom and bust" in education is detrimental to the industry. Companies do not have a stable supply of quality engineers. Gaps exist in their own internal structure, causing development of mine managers to be interrupted. Controlling the minerals market cycles are items to be discussed between industry and government, but there is no reason why industry and universities should not discuss the cycles in education. These cycles will continue, but at least some steps can and should be taken to level the peaks and hollows. The universities should be encouraged to provide the number and type of graduates that the industry needs, while industry should realize that it takes four years to produce a mining engineer graduate. Every attempt should be made to avoid the dramatic swings from "boom to bust" for the better long term health of both the industry and the university mining programs.

There are other factors which should be considered:

> The interesting challenges facing the mining industry include reducing mining costs, mining ore which is more difficult to extract, meeting higher safety and health standards, and facing public concern with environmental problems caused in the past by poor mining practices. Incorporation of new technologies to improve the industry as a whole will need a higher number of technically trained people.

Several of the Mining Departments are currently experiencing critically small enrollments of undergraduate students. There is a level at which the administration of a university/college will no longer support a program because it uses a disproportionate amount of the increasingly inadequate resources. When this occurs, very few of the students who might have entered that program will move to out-of-state institutions. The monetary costs for the student would increase significantly, among other difficulties, so that the potential students are more likely to switch to other disciplines. Any related graduate program may be lost at the same time as the undergraduate program.

The quality, as measured by grade-point averages, of the mining engineering student appears to be declining. Discussions with educators country-wide indicate this has already occurred in many of the mining programs. In general it is the good quality computer-oriented freshmen and sophomore who have left mining programs.

The low enrollment is not just in mining engineering programs. Geological engineering and other related engineering disciplines have had similar decreases to those in this study. Values presented in Table 4 are supplied by SME and are a summary of the enrollments listed in the SME Guide to Minerals Schools. A 21% decrease from 1984 to 1985 is reported for geological engineers. Even disciplines such as civil engineering are showing declines. Every discipline is competing for a smaller number of high-school graduates and "popularity" is a big factor.

The low number of graduating students in the mining and related programs will have a serious effect on graduate programs in a few years. There will be a significant reduction in the pool of qualified US students to enter graduate school. Graduate programs at the moment have reasonable health as indicated from the data from Consolidated Coal Company (Figure 7). But remember these are students who have entered throughout the last five years.

Already many incoming graduate students are those with foreign bachelor degrees. The US students are often those who cannot find jobs in industry and have some financial backing, their own or family, to support further education. Usually the good student who should be entering graduate school are being offered jobs and starting to work in the industry. This is the precise opposite of what should be happening for the future health of the industry and universities. If the trends are not reversed, the US will be importing both undergraduate and graduate mining engineers along with other "National Critical Minerals".

Long term it is the graduate students who will supply the expertise to regulate and solve environmental issues associated with the mining industry. But the effect of low enrollment could have a much further reach. Mining and geological engineers with advanced degrees form a major resource for civic projects involving utilization of underground space for living, working and transportation. They are involved in energy-related projects such as burial of pipelines, development of geothermal energy, underground storage of gas and fuels, and underground power stations. Government projects involving storage of waste, including nuclear, and deep-basing of defense weapons and control centers rely significantly on these types of engineers.

Recent funding of graduate programs from industry, Exxon and R & P to name two, has recently sought to solve the problem of an aging academic faculty. It is regrettable that those students are now graduating at a time when enrollment is heading for a major decline. Thus it is difficult for university administrators to see the need to grab this rare opportunity to hire the bright young graduates being produced.

Similarly funding from government, for example MMRRI and Generic Centers, is helping support graduate students as part of the research effort. People with advanced degrees are a side-product from the research advances being made with these funds. This will only benefit the industry and stretch the effect of government money if their expertise can be used by employing them in industry and universities.

Having money may not solve the predicted lack of US graduate students. First you need to be able to get the students into the program. And then they, like their undergraduate counterparts, need to feel reasonably sure that there will be market for their skills upon completion of their course of study.

What can be done?

Now is the time to attempt to do something while there is still opportunity to change the predicted numbers of graduates for 1987 and 1988.

1. Publicity of data such as that presented here. Mining programs can use this type of information in their recruiting efforts. Students should be encouraged to look at trends in the job market not just look at what is happening today. It would be even better if they would follow their own interests and abilities [11].

2. General publicity to improve the image of the mining profession. Some companies have paid for T.V. and magazine advertisements to show the positive side of the industry. Other companies have made films showing efforts in reclamation and how they work with local communities. Efforts should be made to distribute the information. School children will be possible future mining engineers. Why not educate them at a young age? In fact, one university has a summer program for science teachers to learn all aspects of the mining industry (for credit). The press need educating as well as the general public. They place a great emphasis on problems caused by the industry, while little is printed or said about the positive side of the industry.

3. Discussion with industry and government is needed. They must realize that this is a national problem with important future implications. Already the US industry is behind the development of new mining technologies now being utilized abroad. The industry needs a strong university system to provide students with training in modern methods and likely future technology. If not the gap will widen and the US will find it difficult to meet the challenge of the international marketplace. Unless the trends in enrollment are reversed the university system will become weakened. One avenue of discussion has been opened between SME (the society representing the engineers and educators) and AMC (the group representing the industry). Others should be encouraged.

4. An industrial interest in strengthening the cooperative student program would be an advantage. Cooperative work with companies gives students a feeling that companies are interested in them and supportive of their education. Their course of study can be better chosen and in return a company has a better understanding of the graduate they may ultimately hire on a permanent basis. Summer employment programs and government internships play a similar role. There are educational benefits. The student is more motivated in classes when the material being taught can be seen to have application. Scholarships and loans are not as effective, though obviously play a role. Publicity about cooperative programs and financial aid in general is necessary.

5. Both industry and academia should make a more serious attempt to recruit non-traditional students. The change in the physical requirements of the mining employee now give women an equal opportunity for success in the industry. Insufficient attention has been paid to recruitment of minorities and returning (adult) students. The latter category are often in need of financial assistance as they are more likely to have a family to support.

6. Efforts should be made on the local level for generating positive publicity about mining, educating the local school students, and encouraging recruitment of students into local mining programs. Alumni can perform similar activities in support of their alma maters.

While it is possible, in hindsight, to state that the universities were at fault accepting such large numbers of students in the 70's and early 80's it must be remembered that industry was demanding that more students be produced. They were forecasting high energy needs, many new mines were planned and a number of new mining degree programs started with the encouragement of local industry and government. The difficulty of predicting the number of jobs available for graduates will always be with the mining industry, unlike any other industry from doctors and lawyers on down.

It is not proposed that the universities return to the flourishing era of the late 70's. That is not appropriate for the current state of the minerals industry. But industry, government and universities should be discussing the concerns expressed here which will result from the current enrollment if the trends are allowed to continue. An attempt should be made to attract and retain good quality students to the undergraduate programs, and allow the best of those students to become graduate students and the catalyst for future technological development of the industry. Discussion will allow insight into each others needs and encourage stability within the industry as a whole.

The statements made by Lee Saperstein and David Summers [11,12] remain appropriate. In fact the last paragraph of the letter by Dr. Saperstein should be repeated. "I wish students would pick their majors on the basis of their own individual abilities and interests rather than rushing lemming-like to programs that have reputed jobs. In the end, students will have better jobs and careers if their college majors match their talents and we, in the academic side of things, will have a livelier and more dedicated student". Let us hope that the data presented here, together with support from industry and government, will at least encourage those who have an ability and interest in mining engineering to pursue that interest.

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[3] Private communication from T. Falkie, President of SME and Berwind Natural Resources Co.

[4] O'Neil, T., "AMC Meets: Amid Presentations, Question Remains - How Soon the Recovery for Mining?", Mining Engineering, December 1985, pp 1364-1366.

[5] Soras, G.S., and J.R. Stodden, "Forecast for 1986: Increasing Consumption and Production", Coal Age, January 1986, pp 47-49.

[6] Kral, S., and R. Jenkins, "US Mining is Beginning to Feel Good about its Industry Again", Mining Engineer, December 1985, pp 1359-1363.

[7] Kral, S. and R. Jenkins,"US Government's Stance on Minerals Issues Draws Heavy Criticism at Mining Meetings", Mining Engineering, January 1986, pp 27-28.

[8] Editorial, "Reagan's Tax Plan Hits the Coal Industry", Coal Age, July 1985, pp 11-13.

[9] Editorial, "U.S. Provides $900 Million in Loans, Guarantees to Foreign Mines", Coal Age, August 1985, p 15.

[10] Rice, L.R., "Rock in the Box - Engineer's Salaries...What are you Worth?", Mining Engineering, November 1985, p 1322.

[11] Saperstein, L.W., "Questions Raised Concerning Study of Supply and Demand for Mining Engineers", Letter to the Editor, Mining Engineering, January 1984, p36.

[12] Summers, D.A., "Questions Raised Concerning Study of Supply and Demand for Mining Engineers", Letter to the Editor, Mining Engineering, January 1984, p36-37.

FIGURE 1 : TOTAL NUMBER OF STUDENTS ENROLLED IN 24 MINING ENGINEERING DEGREE PROGRAMS FOR THE LAST TEN YEARS.

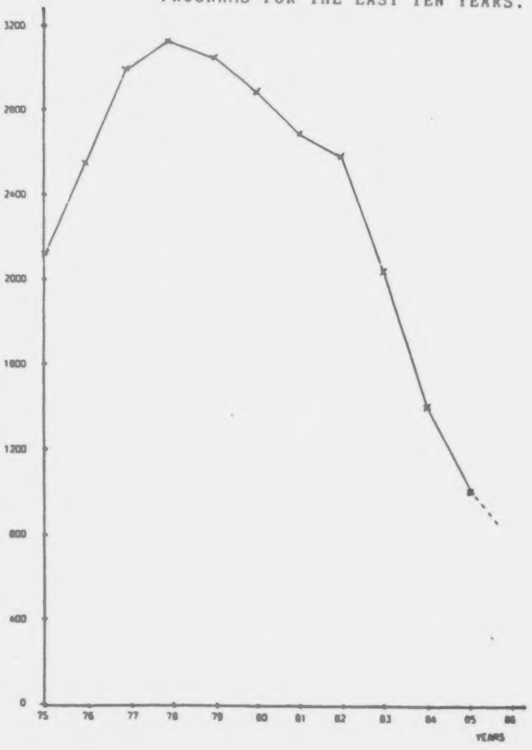


FIGURE 2 : NUMBER OF STUDENTS IN EACH CLASS RELATIVE TO THEIR ENTRANCE YEAR.

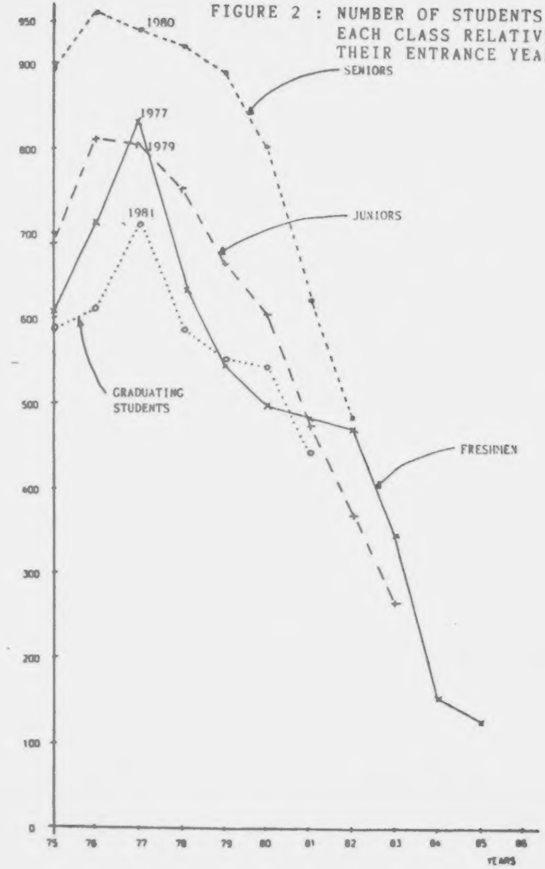


FIGURE 3 : NUMBER OF STUDENTS IN EACH CLASS.

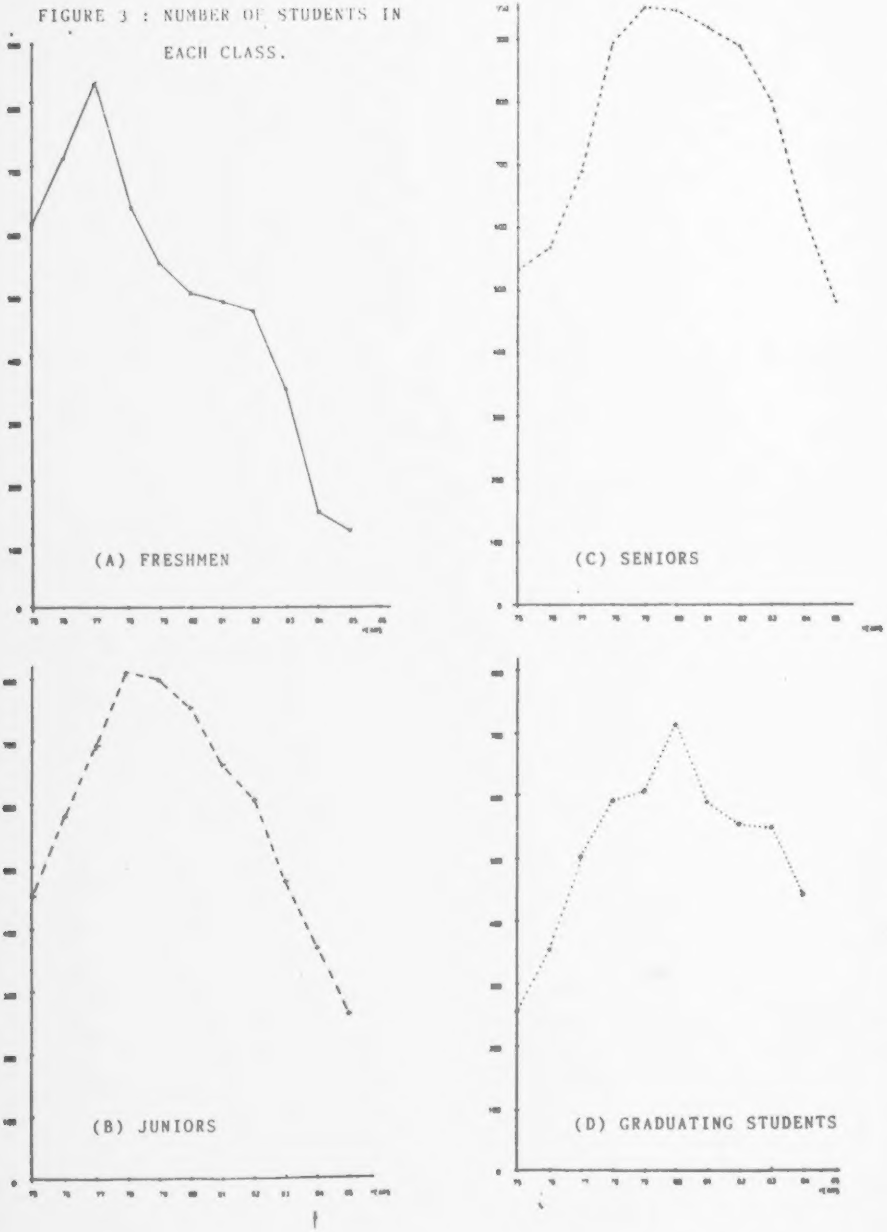


FIGURE 4 : ENROLLMENT IN 1975, 1980, AND 1985 FOR 17 MINING ENGINEERING PROGRAMS.

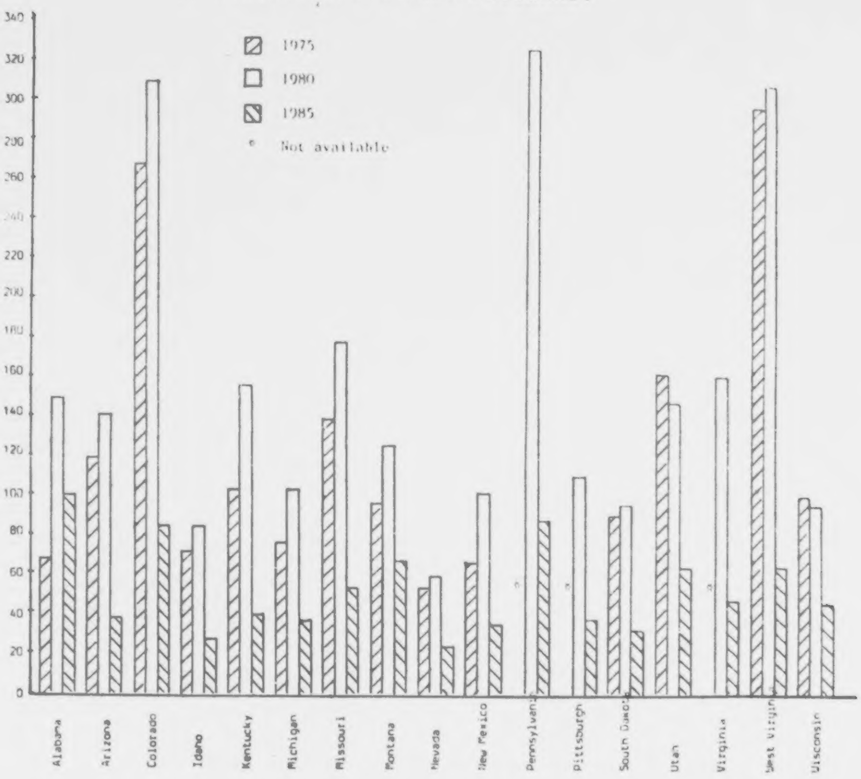


FIGURE 5 : ENROLLMENT AS % OF MAXIMUM NUMBER OF STUDENTS

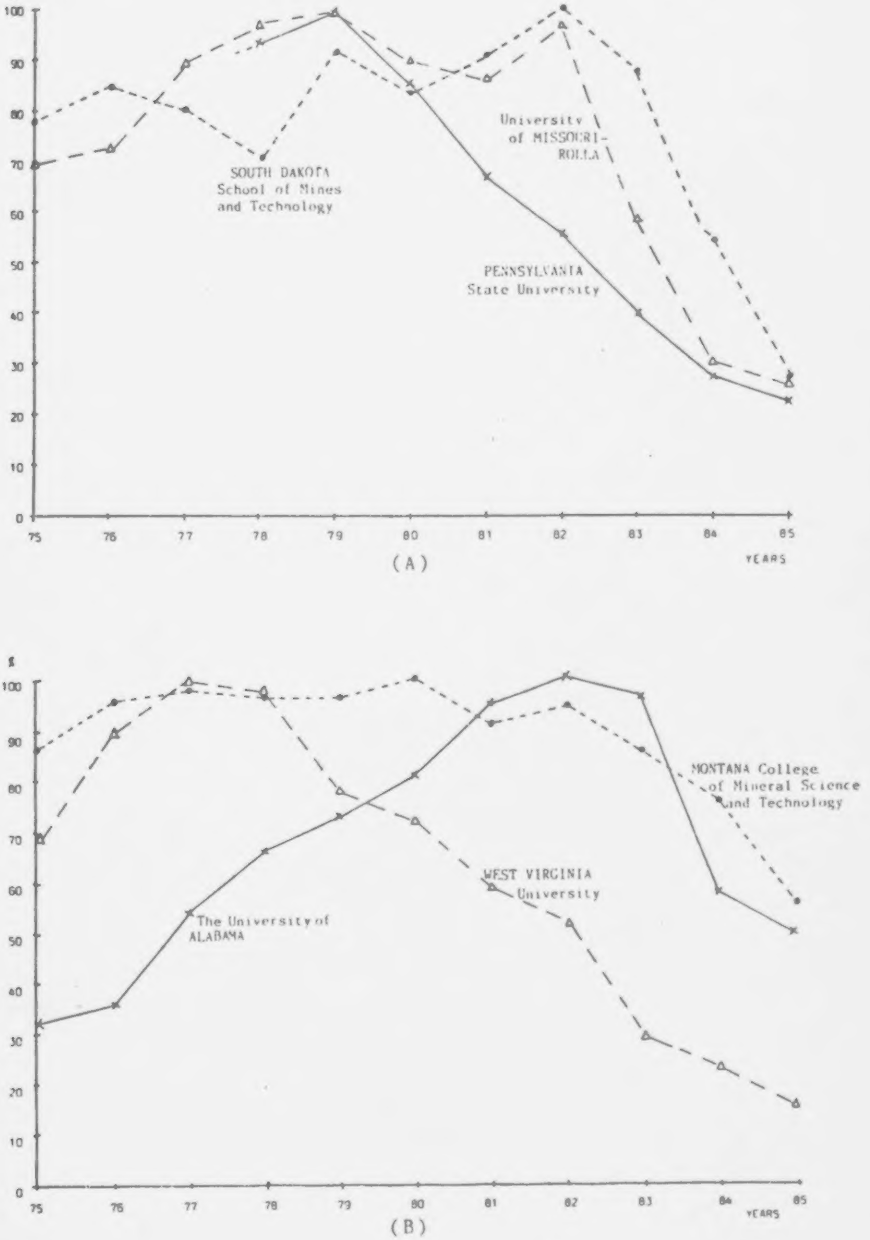


FIGURE 6 : CORRELATION BETWEEN JUNIORS AND GRADUATES AND FRESHMEN AND GRADUATES.

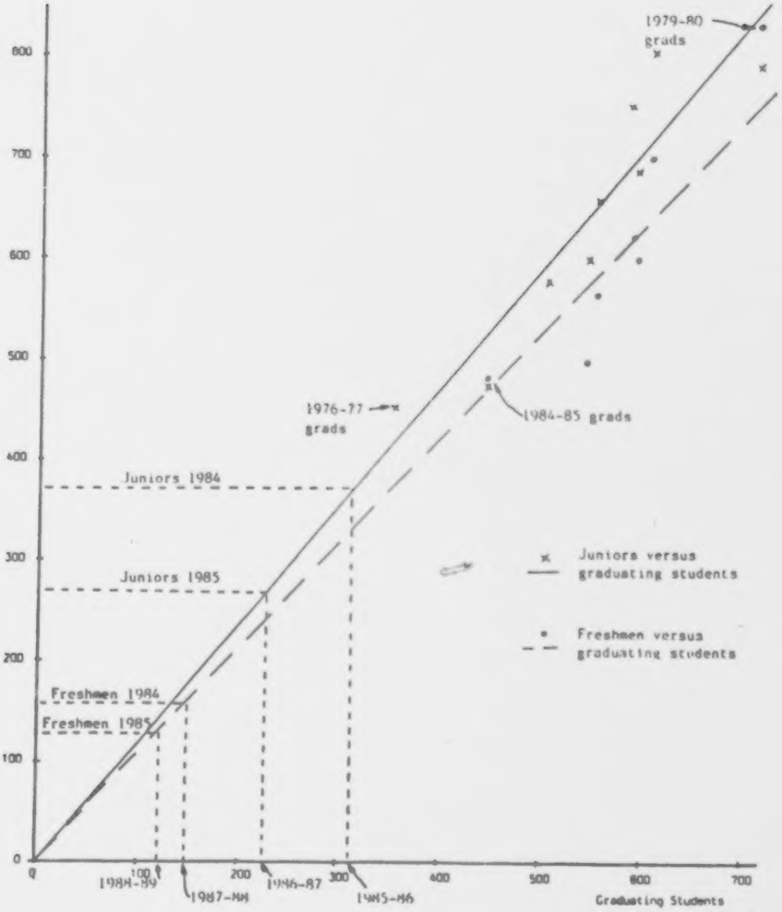
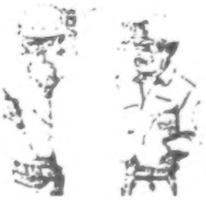


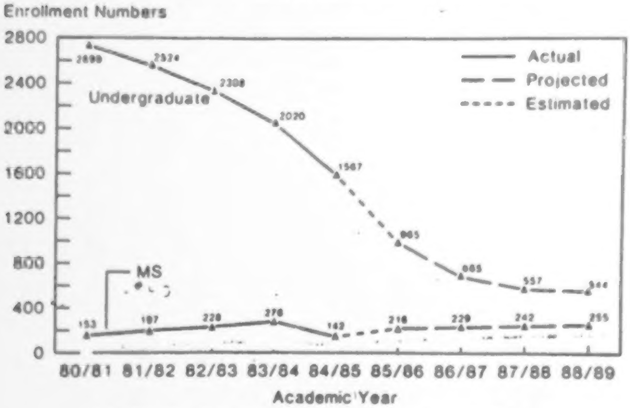
FIGURE 7 : CONSOLIDATION COAL COMPANY STUDY.



SCHOOLS SURVEYED

- University of Alabama
- University of Alaska
- University of Arizona
- University of California-Berkeley
- Colorado School of Mines
- Columbia University
- University of Idaho
- Indiana State University
- University of Kentucky
- Michigan Technological University
- University of Minnesota
- University of Missouri-Rolla
- Montana College of Mineral Science & Technology
- University of Nevada-Reno
- New Mexico Institute of Mining & Technology
- Ohio State University
- Pennsylvania State University
- University of Pittsburgh
- South Dakota School of Mines
- Southern Illinois University
- Texas A & M University
- University of Utah
- Virginia Polytechnic Institute & State University
- West Virginia University
- University of Wisconsin-Madison
- University of Wisconsin-Platteville

MINING ENGINEERING ENROLLMENTS



MINING ENGINEERING GRADUATES

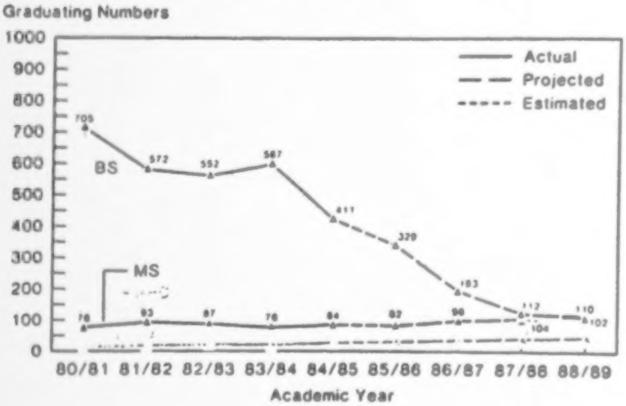


FIGURE 8 : MINING ENGINEERING GRADUATES.

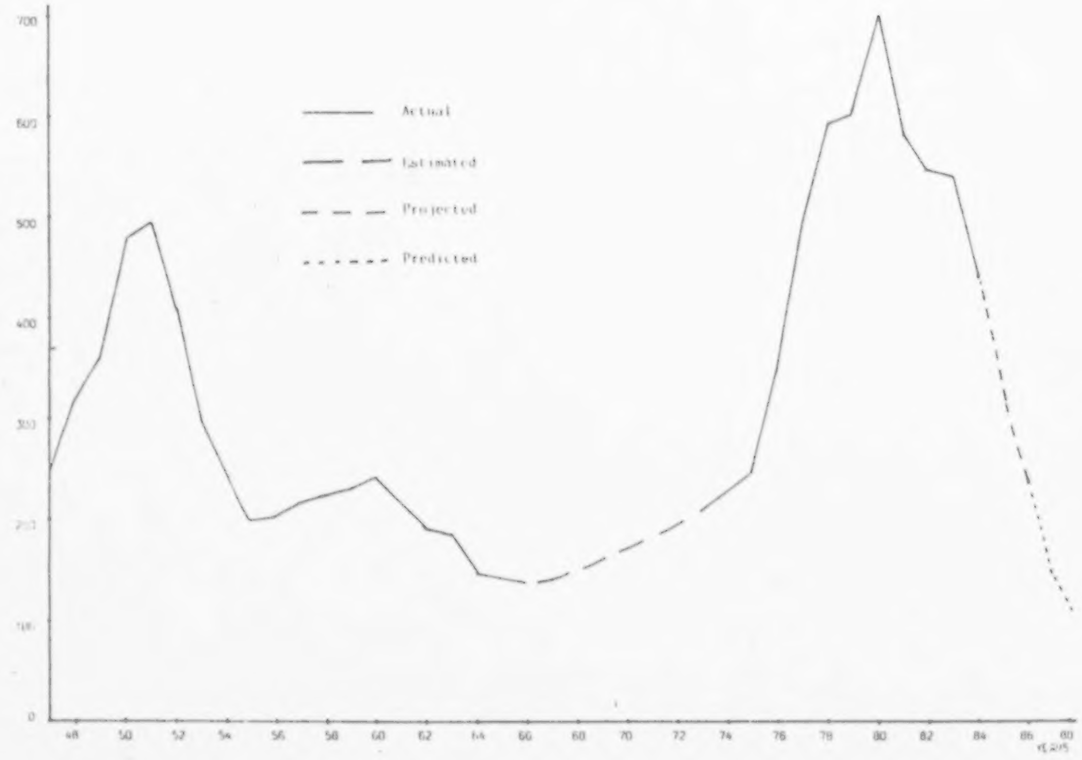


FIGURE 9 :

UNITED STATES
COAL PRODUCTION

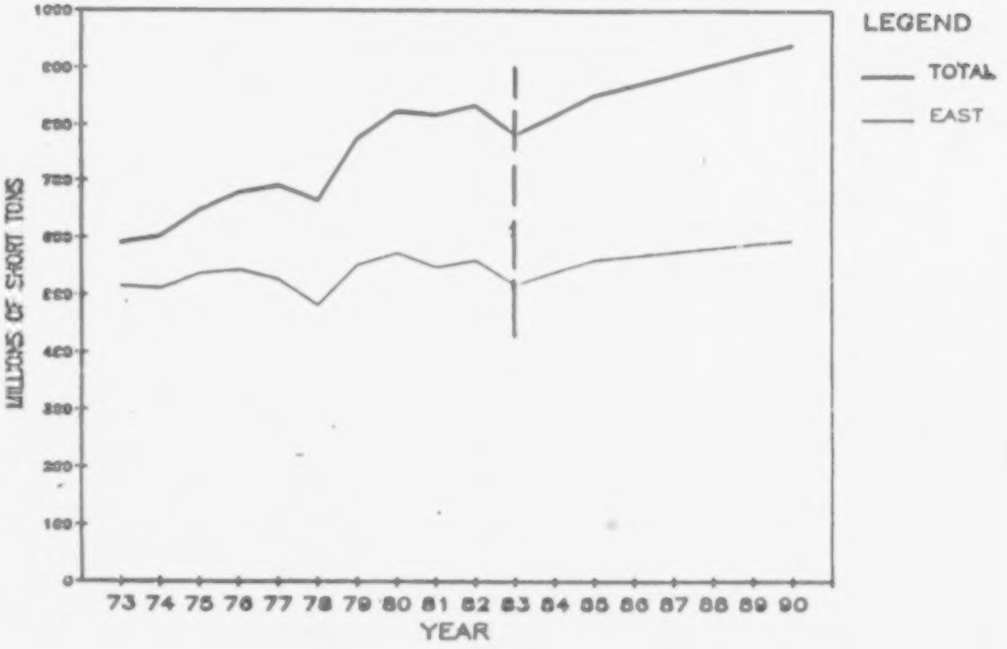


TABLE 1 ENROLLMENT FOR 24 MINING ENGINEERING DEGREE PROGRAMS

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
The University of Alabama #	69	75	113	139	154	170	199	210	201	120	102
University of Alaska-Fairbanks	11	15	25	33	37	46	37	22	25	18	13
University of Arizona	120	130	145	142	141	142	123	107	79	51	38
University of California-Berkeley#	0+	0	2	7	6	9	14	25	93	60	33
Colorado School of Mines	267	271	292	319	286	310	325	250	186	99	85
University of Idaho	72	84	112	91	98	85	101	114	81	71	28
University of Illinois	10	13	16	11	6	4	4	3	3	2	2
University of Kentucky	104	128	159	144	158	157	140	109	71	56	41
Michigan Technological University	77	109	137	114	108	104	85	81	68	47	38
University of Missouri-Rolla	140	145	180	196	199	179	174	195	117	60	53
Montana College of Mineral Science and Technology	97	121	123	121	121	126	113	119	107	94	58
University of Nevada-Reno	54	63	69	66	61	59	69	61	68	62	24
New Mexico Institute of Mining and Technology	67	86	110	108	102	102	83	65	66	45	35
Ohio State University	*	*	*	17	21	38	44	48	33	23	21
The Pennsylvania State University	*	*	*	358	379	327	255	213	150	107	88
University of Pittsburgh	*	105	117	139	128	117	87	79	71	62	44
South Dakota School of Mines and Technology	90	97	92	81	105	96	104	114	100	62	32
Southern Illinois University	0+	0	0	0	10	22	55	57	50	43	31
Texas A&M University	0+	0	0	0	7	28	33	43	40	29	14
University of Utah	162	147	160	152	166	144	138	133	120	79	64
Virginia Polytechnic Institute and State University #	143	227	204	*	188	161	113	106	81	47	47
West Virginia University	297	387	430	423	334	308	254	222	118	101	63
University of Wisconsin-Madison	24	24	25	39	36	25	32	30	30	25	18
University of Wisconsin-Platteville	100	116	123	120	90	95	114	93	92	63	46

* Data not available, totals include estimated values. + New program

Mineral Engineering Program containing students in other related disciplines.

TABLE 2 ENROLLMENT AS % OF MAXIMUM ENROLLMENT

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
The University of Alabama #	33	36	54	66	73	81	95	100	96	57	49
University of Alaska-Fairbanks	24	33	54	72	80	100	80	48	54	39	28
University of Arizona	83	90	100	98	97	98	85	74	54	35	26
University of California-Berkeley #	0+	0	2	8	6	10	15	27	100	65	35
Colorado School of Mines	82	83	90	98	88	95	100	77	57	30	26
University of Idaho	63	74	98	80	86	75	89	100	71	62	25
University of Illinois	63	81	100	69	38	25	25	19	19	13	13
University of Kentucky	65	81	100	91	99	99	88	69	45	35	26
Michigan Technological University	56	80	100	83	79	76	62	59	50	34	28
University of Missouri-Rolla	70	73	90	98	100	90	87	98	59	30	27
Montana College of Mineral Science and Technology	77	96	98	96	96	100	90	94	85	75	54
University of Nevada-Reno	78	91	100	96	88	86	100	88	99	90	35
New Mexico Institute of Mining and Technology	61	78	100	98	93	93	75	59	60	41	32
Ohio State University	*	*	*	35	44	79	92	100	69	48	44
The Pennsylvania State University	*	*	*	94	100	86	67	56	40	28	23
University of Pittsburgh	*	76	84	100	92	84	63	57	51	45	32
South Dakota School of Mines and Technology	79	85	81	71	92	84	91	100	88	54	28
Southern Illinois University	0+	0	0	0	18	39	96	100	88	75	54
Texas A&M University	0+	0	0	0	16	65	77	100	93	67	33
University of Utah	98	89	96	92	100	87	83	80	72	48	39
Virginia Polytechnic Institute and State University #	63	100	90	*	83	71	50	47	36	21	21
West Virginia University	69	90	100	98	78	72	59	52	27	23	15
University of Wisconsin-Madison	62	62	64	100	92	64	82	77	77	64	46
University of Wisconsin-Platteville	81	94	100	98	73	77	93	80	75	51	37

* Data not available, totals include estimated values. + New program

# Mineral Engineering Program containing students in other related disciplines.

TABLE 3 :

NEW COAL AND NUCLEAR GENERATING CAPACITY TO 1994 - BY YEARS

	COAL	NUCLEAR	TOTAL	(COAL %)
1985	6,384	17,660	24,044	27%
1986	5,560	11,713	17,273	32%
1987	2,585	7,875	10,460	25%
1988	3,559	2,320	5,879	61%
1989	1,138	2,427	3,565	32%
1990	1,827	2,305	4,132	44%
1991	8,917	1,177	10,094	88%
1992	4,275	1,240	5,515	78%
1993	6,165	1,250	7,415	83%
1994	4,660	None	4,660	100%
Total	45,070	47,967	93,037	48%
Plants	85	43	-	-
Average Size	530 MW	1,116 MW	-	-

11/15/85

TABLE 4 :

ENROLLMENT DATA

Degree Program	Associate			Baccalaureate			Masters			Doctorate			TOTAL		
	'84	'85	%	'84	'85	%	'84	'85	%	'84	'85	%	'84	'85	%
Geological Engineering	-	-	-	1210	959	-20.7	239	216	- 9.6	56	76	+35.7	1505	1251	-16.9
Geophysical Engineering	-	-	-	58	54	- 6.9	6	5	-16.7	-	-	-	64	59	- 7.8
Metallurgical Engineering	-	-	-	922	808	-12.4	234	273	+16.7	221	183	-17.2	1377	1264	- 8.2
Mineral Engineering	-	-	-	185	137	-25.9	28	24	-14.3	30	30	-	243	191	-21.4
Mineral Processing Engineering	-	-	-	179	130	-27.4	100	107	+ 7.0	53	49	- 7.5	332	286	-13.9
Mining Engineering	-	-	-	1210	885	-26.9	244	247	+ 1.2	103	96	- 6.8	1557	1228	-21.1
Mining Engineering Technology	797	503	-36.9	109	80	-26.6	-	-	-	-	-	-	906	583	-35.7
TOTAL	797	503	-36.9	3873	3053	-21.2	851	872	+ 2.5	463	436	- 5.8	5984	4862	-18.8

Only data provided by the same institution for the same program for both years was utilized in this comparison; therefore, actual enrollment in a curricular area may be higher than indicated here. Statistical information was obtained from the 1986 SME GUIDE TO MINERALS SCHOOLS.

① Aug. 19

I am Mabel Denlinger, Kellogg.

My testimony is from the standpoint of a layman, as concerns mining. However, my husband was a mechanical engineer in the maintenance dept. of the Bunker Hill for 34 years, so I know a good deal about the history of the Bunker Hill.

I have lived in Kellogg 45 years (not consecutive), and taught school at Silver King and later in Kellogg for a total of 20 years.

I have been a student of Anti-Communism since 1961.

We were asked in the newspaper article to give practical suggestions for improving the economy. I have 4 suggestions:

(1.) Stop asking the mining industry to speak with one voice. It is the Bunker Hill Mine that is in serious need of federal help very soon, said

③ Aug. 19, 1986
Aug. 20, 1986

Jack Kendrick, president of Bunker Limited. He very well knows the importance of the mine to the independent strength of this country - that this largest lead-zinc silver mine in the United States is needed for our common defense. I agree that our tax money should be used for this purpose at this critical time, to maintain the mine in working condition until such time as silver reaches a price to pay for production. Though I believe Mr. Kendrick did not ask for a maintenance grant, I think the Congress is obligated by the Constitution, as part of our defense, to save the Bunker Hill. Saving the Bunker Hill will also improve the economy of the whole Northwest. The mines might speak with one voice on this particular point - they have not been asked, as yet. But the mines are not a monopoly. Why should they be required to speak with

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Aug. 20, 1986

one voice? I think that requirement is a mistake.

② The same is true of this second suggestion. Congress has the Constitutional power to tax imports the adjustable rates necessary for fair trade.

Article 1, Sec. 8 says "The Congress shall have Power to lay and collect Taxes, Duties, Imposts and Excises...

...

"And

"To make all Laws which shall be necessary and proper for carrying into Execution the foregoing Powers..."

Mr. Kendrick is right in asking for tariff. As a book published in 1985—"Prosperity Restored by the State Rate Tax Plan" says: (p. 11)

"In addition to taxes imposed on articles of luxury, articles of consumption such as steel, aircraft, computers, vehicles used to facilitate

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internal and external commerce, tools of production, farm equipment, military provisions, etc., (all being necessary to the internal strength of our nation) ought to be taxed when imported, with a view to encourage the domestic manufacture of such articles." The authors, Edward A. Ellison, Jr. and John William Kurowski, also say some nations are "now exporting into our country virtually duty free ..." (p.12) and on p.37 write, "The members of Congress are more concerned with correcting the ills of a global economy (a problem, the solution of which is not within their purview) rather than encouraging and protecting the growth of the American economy." Therefore Suggestion No. 2 is to obey the Constitution and saves our basic industries by taxing imports. Again, Mr. Kendrick is right. Congress should listen, and obey the Constitution they have sworn to uphold and

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Aug. 20, 1986 ⑤

defend.

③ Pieter W. Botha gave the clue to improvement of the economy when he said in Johannesburg, as quoted in the Spokesman-Review August 13:

"We are not in the dock before an international conspiracy because we are guilty. We are there because we are the prey of greedy world powers..."

The same is true of the Bunker Hill. Greedy world powers want world government. Congress has to fight against those same greedy world powers that have planned to destroy our mining industry. Abraham Lincoln knew about that planning. He said things don't just happen – they happen because somebody planned them that way.

Therefore suggestion No 3 is not only to tax imports, but to tax them competitively – so that there will be no more flooding the domestic market

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with imports; so that there will be no more destruction of domestic industries by greedy world powers.

④ Pay the deficit every year! Ellison and Kurowski show very clearly that this can be done, by obeying the Constitution, and that the direct tax, constitutionally required to be used proportionally to the census and the representatives, was set in the Constitution for this very purpose - for an emergency.

They say, p. 17: "... the Secretary of the United States Treasury, in order to extinguish an annual deficit, shall submit a bill to each state's capital for its apportioned share of any deficit which may occur. Each state would be left free to raise its apportioned share of the deficit within a time specified by Congress..."

Therefore, suggestion No. 4 is that we should support the annual paying of the

⑦

deficit by using the method already written in the Constitution.

George Washington's advice in his Farewell Address, quoted by the authors of "Prosperity Restored," on p. 1, explains further why the Constitution provided for annual payment of the deficit:

"As a very important source of strength and security, cherish public credit, ... use it as sparingly as possible ...; avoiding likewise the accumulation of debt ... in time of **Peace** ... discharge the Debts which unavoidable wars may have occasioned, not ungenerously throwing upon posterity the burden which we ourselves ought to bear."

Of these 4 suggestions, I believe the monthly federal maintenance grants, until mineral prices will pay the production costs, is of greatest immediate attention, because we must have the

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Bunker Hill for our common defense in case of sudden hostility.

The point that many non-miners do not understand, (this would include many in Congress) is why a mine must be expensively maintained and can't be simply shut down, when metal is not needed.

I think it would be helpful to have mining officials explain for this hearing, if they have not already done so, what irreparable damage happens to mines when they are shut down; that does not happen to other industries, and explain why starting up a mine again is such a slow and formidably expensive process.

Mabel Denlinger
710 Caledonia
Kellogg, Idaho 83837